Wholesale mobile voice call termination

Market Review

Volume 2 – Main consultation

Consultation

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Contents

Section 1

Executive summary

1.1 When fixed and mobile operators offer their customers the ability to call UK mobile numbers, they pay mobile communications providers a wholesale charge to complete those calls. The rates that operators pay are called 'mobile call termination' (MCT) charges or more commonly 'mobile termination rates' (MTRs).

1.2 On 31 March 2011, the rules which limit MTRs will expire. We are conducting a market review to consider what rules, if any, should apply after that time. This consultation sets out our proposals for a new MTR regime, running from 1 April 2011 to 31 March 2015.

1.3 The mobile sector is changing, in ways that are relevant to this market review. Mobile services connect a growing number of users to the internet, and users are as likely to send messages as to make telephone calls. These changes affect the question of what MTRs are likely to lead to the best outcomes for consumers, and whether regulation is needed to achieve this.

1.4 In our earlier consultation (published on 20 May 2009), we sought views on different approaches, including potentially radical reforms such as removing all rules on call termination or requiring that mobile call termination be priced at zero (termed 'bill and keep'). In this consultation, we explain why, having considered the options, we think that capping MTRs, based on some measure of cost, will lead to better outcomes for consumers than these alternative approaches.

1.5 In addition, European regulators have been debating the merits of different approaches to regulating MTRs. In May 2009, the European Commission (EC) issued a Recommendation calling for MTRs to be limited to the incremental costs of providing call termination to other communication providers (a method called, in this consultation, pure long-run incremental cost (pure LRIC).[1] The closest alternative to pure LRIC is to include additionally a mark-up for joint and common costs, such as the cost of the spectrum used by the network – an approach called 'LRIC plus' or LRIC+).[2]

1.6 Previous MCT charge controls have been set using LRIC+. In our model, if we set charges using pure LRIC, by 2015, MCT charges will be one third of the charges calculated on a LRIC+ basis. A pivotal question in this review is: should we follow the EC's Recommendation and adopt pure LRIC?

1.7 Consistent with our primary duty, in deciding which method to use to set charges, we have considered how each approach affects different consumer groups.[3] We have also undertaken an impact assessment to consider how other stakeholders, including fixed and mobile communications providers, may be affected by our proposals.

[1] Pure LRIC only allows for long run variable costs to be recovered, and excludes common costs. For more information, see section 7.
[2] Long-run incremental cost (LRIC) is a method of understanding the incremental cost to an operator for providing a service, compared with not providing that service. LRIC+ includes an allocation for the fixed and common costs for the service, so that the cost of a minute of traffic on a particular network segment is the same for all services carried across that segment.
[3] Ofcom's primary duties are to further the interests of citizens, and of consumers, in relation to the matters where we have regulatory responsibility. Annex 6 has more information on the regulatory regime and our general and specific duties.

1.8 Our approach is also consistent with the feedback from our earlier consultation, in which major stakeholders were unanimous that some form of cost-based charge control was needed, with debate polarised between whether LRIC+ or pure LRIC would deliver the best outcomes. Other methods such as bill-and-keep or capacity-based charging were seen as impractical or potentially problematic if introduced (or else, options to return to in the long term).

1.9 This consultation sets out our proposals to:

1.9.1 Define as separate markets each market for all calls to a given UK mobile number range for which a communications provider can determine the termination rate.[4]

1.9.2 Designate each undertaking that has been allocated one or more of these number ranges as having significant market power with respect to the (wholesale) market for the service of terminating calls to that range. This recognises both the ongoing technological developments and the commercial reality that control of the number range provides the mechanism by which pricing power is exercised in relation to calls to 07 numbers. Applying this approach will mean that more than 50 mobile communication providers (MCPs) are designated.[5]

1.9.3 Regulate directly the termination charges of the four[6] MCPs which operate fully-deployed national mobile networks. After a single-year transitional period, we anticipate the same rate being set for all four networks (an outcome termed 'symmetry').

1.9.4 Require other MCPs to provide call termination on fair and reasonable terms. We expect that this will result in commercial agreement to exchange traffic in both directions at the same charge as the symmetrical rate that applies to the four national MCPs (an outcome termed 'reciprocity'). Reciprocity is also consistent with the approach that we have taken in resolving a number of disputes previously, and, without prejudging the outcome of future disputes, we think that these decisions help provide regulatory certainty that, in many – perhaps almost all – cases, reciprocity is a fair and reasonable arrangement for MCT. This mirrors the arrangements that already apply in relation to fixed call termination.[7]

1.9.5 Use pure LRIC to set the charge control. We propose a four-year glide path of rates, based on a maximum average rate calculated using the pure LRIC of providing call termination at the end of our charge control period. This will lead to MTRs falling from 4.3ppm in 2010/11 to 0.5ppm by 2015 (in 2008/9 prices). The major factors behind this decline are:

[4] In the 2007 charge control, the market definition was linked to specific mobile access networks and therefore excluded calls that, for example, went to voicemail even if these calls were charged exactly in the same way.

[5] In the 2007 charge control, only the five national mobile network operators (MNOs) were designated as having significant market power, and smaller MCPs were not subject to ex ante regulation

[6] In September 2009 Deutsche Telekom and France Telecom announced their intention to merge their UK MCPs, T-Mobile UK and Orange UK. On 1 March 2010, the merging parties received regulatory approval from the European Commission for the proposed merger. This merger has now reduced the number of national MCPs in the UK from five to four.

[7] In the 2007 charge control, for mobiles there was no fair and reasonable requirement on smaller providers, which led to a number of disputes between large and small providers covering MTRs for smaller operators.

- very large increases in data volumes, reducing the proportion of costs attributable to voice;
- decline in the cost of network equipment, as 3G technology becomes more established; and
- the removal, as a result of moving to pure LRIC, of the contribution by MCT charges to the joint and common costs of the network. (The equivalent calculation for LRIC+ would see a maximum average charge of 1.5ppm by 2015.)

Table 1 - Proposed MTRs (pence per minute - 2008/09 prices)

	2010/11	20011/12	2012/13	20013/14	2014/15
Vodafone / O2 / Orange / T-Mobile[8]	4.3	2.5	1.5	0.9	0.5
H3G[9]	4.6	2.5	1.5	0.9	0.5
Other Mobile Call Providers	Set on the basis of being fair and reasonable				

1.9.6 Limit the frequency and size of changes MCPs can make to their MTRs. This will significantly limit the scope for a practice called 'flip-flopping', where rates are varied by time of day to exploit flexibility in the way that the previous regime worked. Left unchecked this practice could allow MCPs to force others purchasing MCT to pay more, in aggregate, than the rates intended to be set as an upper limit in the previous charge control. This practice also forces competing operators to incur extra costs, as the MTRs are frequently changed by significant amounts.

1.10 We propose using pure LRIC method to set regulated rates (over LRIC+) in the light of economic evidence, the legal position and other relevant evidence. In particular:

1.10.1 no single argument or set of economic arguments have been found to strongly support one approach over the other – both have their merits and limitations;

1.10.2 the distributional impacts of pure LRIC as compared to LRIC+ on consumers are not so significant to be a basis for not adopting pure LRIC; and

1.10.3 we set out our view that, given the decision by the EC to recommend a particular approach across all EU Member States, we ought to adopt the EC Recommendation unless there are substantive reasons not to do so.

1.11 We believe that the overall outcome for consumers of adopting pure LRIC will be positive, and the risk of harm to consumers overall or on specific groups of consumers who are vulnerable is low.[10] We expect that, as part of an overall

[8] 2G/3G MCPs
[9] 3G Only MCP
[10] This issue is discussed further in section 9

reduction in MTRs, the move to pure LRIC will reduce call prices and promote competition, furthering the interests of consumers.

1.12 Our proposals continue a long term trend during which time MTRs have fallen from more than 23ppm in 1995 to less than 5ppm today as shown in the chart below. During that time mobile penetration has increased enormously, prices have fallen considerably and MCPs have invested heavily in delivering new services, such as mobile broadband.

1.13 As with previous MTR charge controls, the mobile industry will continue to face steady and sustained reductions in MTRs. We anticipate that the market will be capable of adapting to these changes, which will be implemented over four years and which are broadly in line with previous trends. As the market adapts, we believe that further reductions in termination rates will promote competition, the development of innovative tariff packages and the growth of genuinely converged fixed and mobile services.

Figure 1 – MTRs, subscription and ownership

Source: Ofcom

1.14 Following the publication of this consultation, we plan to conclude the market review with a statement in the second half of 2010.

Section 2

Introduction and context to this market review

Structure of the document

2.1 This document goes through the market review process and sets out our recommendation for future regulation of the mobile voice call termination market. It has three main parts:

2.1.1 *Part 1 – Summary and overview*: section 1 (the previous section) and this section 2 provide an executive summary and a background to the regulation of call termination and an overview of the commercial and European contexts.

2.1.2 *Part 2 - Understanding the consumer detriment*: sections 3, 4 and 5 define the market for wholesale call termination and considers whether operators in this market(s) have significant market power (SMP). We also consider the potential detriment arising from the presence of SMP.

2.1.3 *Part 3 – Selecting and implementing a remedy*. sections 6 to 9 consider the remedies that we think should be applied, given our proposed finding on SMP, and sets the proposed rate for the future regulation of mobile voice termination.

2.2 A series of annexes support the analysis in the main body of the document.

Mobile termination rates

2.3 In order for customers of different networks to be able to call each other, telecommunications networks, including mobile networks, need to be connected to one another. One long-standing role of telecommunications regulators across the world has been to help ensure adequate interconnection of telecommunications networks. Without regulation, larger networks might seek to refuse interconnection to smaller networks, and thereby undermine competition – since smaller networks could not offer an attractive service to new customers. This reflects the feature of communications networks that the more people you can reach and be reached by on a network, the more valuable its service is likely to be to you.[11]

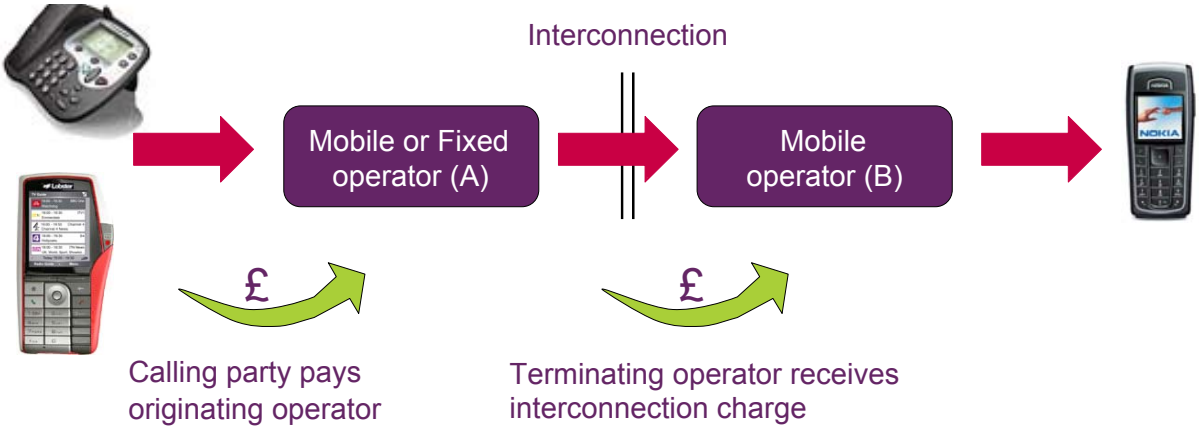
2.4 In practice, UK network operators conclude commercial interconnection agreements, setting out the terms and conditions on which they will interconnect – with Ofcom resolving disputes concerning those agreements if either party asks it to do so.

2.5 One of the services provided between network operators offering voice services is call termination – that is, the completion of a call to a customer of another network. Mobile voice call termination is the service necessary for a network operator to connect a caller with the intended mobile recipient of a call on a different network. Under current interconnection practices, the network of the customer making the call

[11] www.itu.int/osg/spu/ni/fmi/casestudies.htm

pays an amount (known as the wholesale mobile call termination rate or MTR) to the network of the customer being called.[12] (Figure 2)

Figure 2 - Mobile termination and calling party pay



2.6 When considering the competitive characteristics of call termination under this arrangement (sometimes termed a calling network provider pays (CNPP) system), most regulators across the world have concluded that, without regulation, each operator is able to set a charge for connecting calls to its own customers without any significant competitive constraint.[13] That is, in terms of the EC Framework, the operator in question has significant market power (SMP) with respect to call termination.

2.7 Given this, operators may have an incentive to set the charges as high as possible. This is broadly consistent with the observed behaviour of operators. Therefore, many regulators, including Ofcom, have regulated fixed and mobile termination rates, typically basing them on cost-related rates. Under the EC Framework the regulatory process for setting these rates is called a market review.

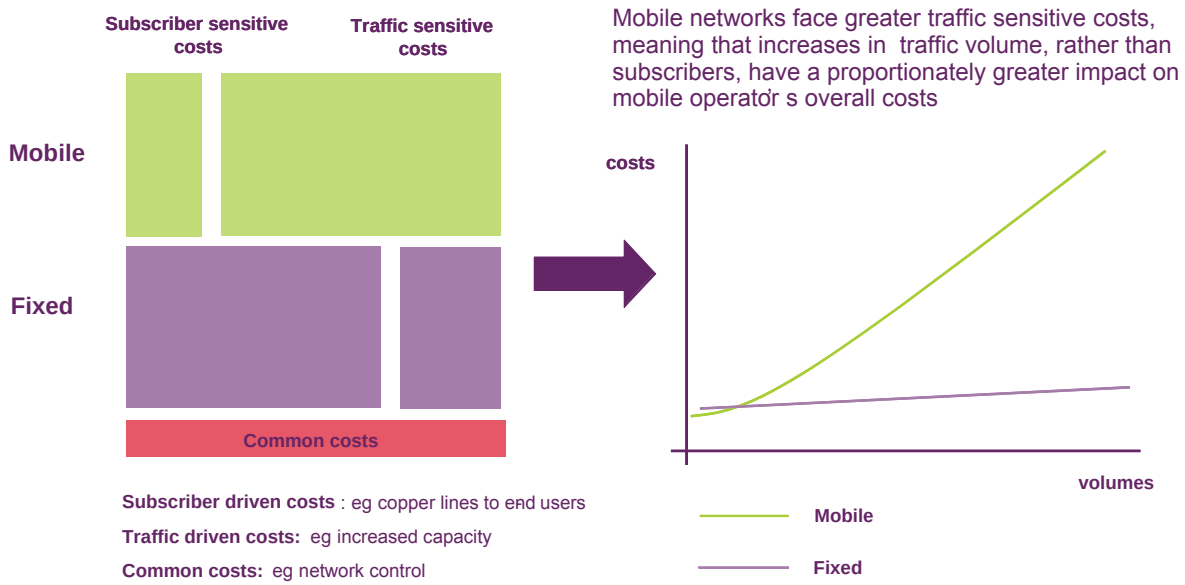
Differences between fixed and mobile

2.8 Regulated termination rates are set independent of *who* is buying termination (that is, on which network the incoming call originates), and both wholesale fixed voice call termination (FCT) and mobile call termination (MCT) have been regulated for some time.

2.9 However, mobile and fixed sectors have very different market structures, reflecting differing market development and fundamental differences in the underlying technologies and associated cost structures. There are, for example, significant differences in cost drivers; traffic sensitive costs are significantly higher on mobile networks, while subscriber driven costs are more important on fixed networks. This is illustrated in Figure 3 below:

[12] This charge is referred to as a *wholesale* charge because it is charged and paid between network operators, rather than by retail customers.
[13] Unless there is the presence of countervailing buyer power, or when the purchaser is able to influence the price charged by the seller.

Figure 3 - Illustration of traffic-sensitive and subscriber-sensitive costs on fixed and mobile networks



2.10 In the fixed sector, the legacy of monopoly has resulted in a single fixed incumbent network operator, BT, competing with many smaller fixed operators. In the mobile sector, spectrum policy has largely determined the number of competitors, with allocations of first two, then four and finally nine spectrum licences suitable to operate a national mobile network, currently held by five different licensees.[14] This picture may continue to change further with the release of more spectrum over the next few years.

2.11 However, we are starting to see a blurring of the boundaries between fixed and mobile, with mobile phones being used in the home and fixed lines being used to provide mobile (or related) services, for example via femtocells, or Orange's UMA service on Blackberry.[15]

Fixed call termination

2.12 BT's fixed voice call termination (FCT) charges are regulated by the network charge control, which sets charges on BT for wholesale conveyance and interconnection services, including termination.[16] Broadly speaking, BT's wholesale FCT charges (FTRs) are currently set using a methodology called long-run incremental cost + (LRIC+).

2.13 Other fixed communications providers which offer FCT are required to provide network access (including call termination) on fair and reasonable terms. Although, in principle, operators can agree FTRs through bilateral commercial negotiation, in practice, charges are subject to an industry-wide reciprocity agreement. If Ofcom were required to determine a dispute regarding FTRs, while treating each case on the facts specific to that case, it is likely that we would have regard to BT's regulated charges in determining what constituted "fair and reasonable terms".[17]

[14] Becoming four after the completion of the T-Mobile/Orange merger.
[15] UMA = unlicensed mobile access. See http://help.orange.co.uk/orangeuk/com
[16] http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/statement/)
[17] http://www.ofcom.org.uk/consult/condocs/wnmr_statement_consultation/statement/statement.pdf

2.14 Wholesale FTRs are currently no more than 0.25 pence per minute.[18] This rate is regulated until 30 September 2013.[19]

Mobile call termination

2.15 The current regime for MCT regulation was set on 27 March 2007. In our decision (the 2007 MCT Statement) we found that all five UK national mobile network operators possessed SMP in relation to calls to their own customers, and capped MTRs for each operator at rates based on LRIC+.[20]

2.16 The charges reflected differences in the underlying costs for different mobile technologies using different spectrum bands. As a result, the same charge was set for the four 2G/3G network operators, based on the costs of a hypothetical average efficient operator, with a higher charge for H3G, recognising the higher costs it faces as a newer, 3G-only entrant.[21]

The purpose of regulation is to deliver our statutory duties and international obligations

2.17 Ofcom's principal duty, as set out at s3(1) of the Communications Act 2003 (the Act) is:

> "to further the interests of citizens in relation to communications matters; and to further the interests of consumers in relevant markets, where appropriate by promoting competition."

2.18 Ofcom's role as a regulator is governed by those powers and duties conferred on us by Parliament and set out in various laws including the Act. This Act gives effect to much of the regulatory framework for electronic communications that has been established by the EC across the European Union (which is set out in four principal directives).[22]

2.19 sections 3 and 4 of the Act outline Ofcom's general duties and community obligations. The specific requirements relevant to this consultation are discussed further in annex 6.

Dealing with market power and market failure

2.20 Under the Act, we have the power to impose conditions on communications providers with SMP in particular markets. This power is exercised after a process called a market review. We can also impose rules on all communications providers as general

[18] 0.25 is the daytime rate for call termination at the local exchange, and includes a payment for project management, policy and planning. See BT's carrier price list (at: http://www.btwholesale.co.uk/pages/static/service_and_support/service_support_hub/online_pricing_hub/cpl_hub/cpl_pricing_hub.html) for further details.
[19] http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/statement/)
[20] See http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/
[21] Note however the consequences of the appeal by BT of these rates, as discussed at paragraphs 2.24 to 2.28.
[22] Directive 2002/19/EC, Directive 2002/20/EC, Directive 2002/21/EC, Directive 2002/22/EC and Directive 2002/58/EC. See also the EC's Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC.

conditions.[23] National regulatory authorities (NRAs), such as Ofcom, are required to carry out market reviews of competition in communications markets to ensure that regulation remains appropriate and proportionate in the light of changing market conditions.[24]

2.21 Each market review has three stages as laid out in sections 79 to 91 of the Act:

2.21.1 definition of the relevant market or markets;[25]

2.21.2 assessment of competition in each market, in particular whether any undertakings have SMP in a given market;[26] and

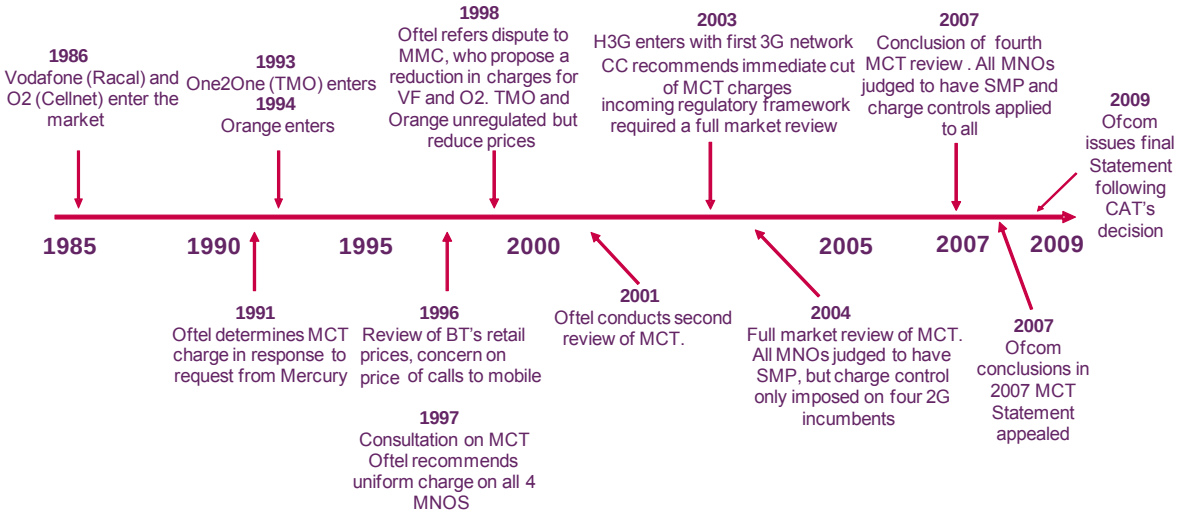
2.21.3 assessment of appropriate regulatory obligations where there has been a finding of SMP.

Previous market reviews and appeals

2.22 Mobile call termination charges have been subject to some form of regulation for nearly two decades. Figure 4 below highlights the regulatory timeline of MCT services.

2.23 Over the past decade, companies with an interest in mobile termination rates (i.e. fixed and mobile providers) have challenged sector regulators and competition authorities (including through the courts) over the setting of mobile termination rates, largely responding to the significant net commercial impact of these wholesale payments.

Figure 4 - Timeline of regulation 1985 - 2009



2.24 In May 2007, both BT and H3G appealed Ofcom's 2007 MCT Statement to the Competition Appeal Tribunal (CAT). H3G's appeal related to Ofcom's determination

[23] Section 45 of the Communications Act sets out Ofcom's powers to impose general conditions and significant market power conditions.
[24] Sec 80 et seq of the Communications Act (2003)
[25] Section 79 of the Communication Act (2003)
[26] Section 80 of the Communications Act (2003)

that H3G has SMP and the charge control. BT's appeal related to the level of the charge control only.

2.25 On 20 May 2008, the CAT upheld Ofcom's finding of SMP for H3G, dismissing the 'non-price control matters' arising in H3G's appeal.[27] That judgment was appealed by H3G on 17 June 2008 to the Court of Appeal. The Court of Appeal handed down its judgment on 16 July 2009, dismissing H3G's appeal and upholding Ofcom's finding of SMP for H3G.[28]

2.26 On 18 March 2008, the CAT referred various 'price control matters' of the same appeal to the Competition Commission (CC). The CC notified the CAT of its determination of the price control matters on 16 January 2009.

The CC's determinations

2.27 The Competition Commission determined that MTRs should be reduced to the pence per minute charges in real 2006/07 prices (original charges set in the 2007 MCT Statement are shown in brackets) set out below.

Table 2 - Competition Commission determined that MTRs

	2007/08	2008/09	2009/10	2010/11
Vodafone & O2	5.2 (5.5)	4.7 (5.4)	4.4 (5.2)	4.0 (5.1)
T-Mobile & Orange	5.7 (6.0)	5.0 (5.7)	4.5 (5.4)	4.0 (5.1)
H3G	8.9 (8.9)	6.8 (7.5)	5.5 (6.7)	4.3 (5.9)

2.28 On 2 April 2009, the CAT issued its final ruling upholding the CC's determination and remitting the 2007 MCT Statement back to Ofcom to revise the charge control in accordance with the findings of the CC. On the same day, Ofcom published revised SMP service conditions following the CAT's decision.[29]

2.29 The CAT's final judgment was appealed by T-Mobile, Vodafone, Orange and O2 to the Court of Appeal on the grounds that the CAT did not have the power to direct Ofcom to reset the charges for years 2007/8 and 2008/9, which was the period that had elapsed during the course of the appeal proceedings. The appeal was heard in March 2010 and the judgment is awaited.

Other disputes regarding mobile call termination

2.30 In addition to the 2007 statement, we have determined MTRs as a result of disputes brought to Ofcom more recently by a joint submission from Mapesbury Communications Limited (MCom)[30] and T-Mobile, and from Cable & Wireless plc

[28] www.hmcourts-service.gov.uk; case c1/2009/1203

[29] See:http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/CTMAmendment2009final.pdf for further detail.

[30] http://www.ofcom.org.uk/consult/condocs/mapesbury_tmobile/statement/mcom_deter.pdf

(C&W)[31] and T-Mobile. In both disputes, the disputants had not been able to agree the MTR to be charged for the termination of calls originated on T-Mobile's network.

2.31 Both MCom and C&W are operators with respect to whom no SMP determination had been made at that time in relation to their mobile services; in the 2007 Statement T-Mobile was determined to have SMP.[32]

2.32 In both cases we set reciprocal rates between each of MCom and C&W, and T-Mobile.[33]

Preliminary consultation on future regulation

2.33 On 20 May 2009 we commenced this market review by publishing our preliminary consultation on wholesale mobile voice call termination.[34] In it, we asked what rules, if any, should apply after the current rules, which set wholesale MTRs, expire on 31 March 2011.

Possible regulatory approaches for MCT

2.34 The focus of the preliminary consultation was on whether to regulate prices and, if so, how. We did not, at that stage, consider what the regulated prices might be, or attempt to decide the best approach. The six options we considered were:

- *Deregulation* – removal of all termination regulation from mobile operators (or, perhaps, all fixed and mobile operators).
- *Long-run incremental cost + (LRIC+)* – charge control set broadly on the basis of the same cost standard as it is today.
- *Long-run marginal cost* - revised charge-setting method with no allowance for recovery of common costs, broadly the approach recommended by the EC. (Note that this is the approach described in this consultation as 'pure LRIC').
- *Capacity-based charges (CBC)* – a different approach to setting the structure of termination charges based on the capacity required for termination.
- *Mandated reciprocity* – set mobile changes to match the rates set for fixed operators.
- *Mandated 'bill and keep' (B&K)* – termination charges effectively set at zero.

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31 http://www.ofcom.org.uk/bulletins/comp_bull_index/comp_bull_ccases/closed_all/cw_01004/cwdispute.pdf

32 C&W was (and is) regulated in relation to its fixed termination charges in accordance with the FTR regime.

33 Specifically, Ofcom determined that from the date of the final determination the MTR charged by MCom or C&W for the termination of calls originated on the T-Mobile network and terminated on the MCom or C&W network may not exceed 4.4ppm (2006/07 prices), converted into nominal terms. An adjustment was required in order to convert this option to nominal terms to account for three years of relevant inflation. This was the same as the (lowest) regulated MTR specified in the Competition Commission (CC) determination for 2009/10. (http://www.competition-commission.org.uk)

34 http://www.ofcom.org.uk/consult/condocs/mobilecallterm/mobile_call_term.pdf

The most important issue is how each approach affects consumers

2.35 We considered that each of these options (with the possible exception of the deregulatory option, the outcome of which is uncertain) was likely to reduce the current pence-per-minute charge for MCT.[35] Such a reduction would have different effects on consumers, competition and commercial practice in the industry.

2.36 In summary we considered that:

- lower mobile termination rates are likely to benefit consumers overall (both fixed and mobile) because communications providers will have greater retail pricing flexibility. We would expect providers to be able to offer consumers a wider variety of retail packages and tariff structures;
- while some low-usage customers may be worse off (if termination rates are reduced) there may be more appropriate policy mechanisms to ensure that these and other vulnerable consumer groups are adequately protected;
- lower termination charges might ameliorate possible competition concerns over on/off-net price differentials;
- lower mobile termination charges are likely to lessen possible concerns over competition between fixed and mobile communications providers; and
- the commercial impact of lower termination rates on UK communications providers, particularly regarding the potential for discrepancy of effect between fixed and mobile operators, needs careful consideration.

Primary questions in the consultation

2.37 We asked several questions in that consultation. The three primary questions were:

2.37.1 Should our policy approach to regulating MTRs change? For example, given the possible benefits, should we adopt a policy of reducing termination rates as far and fast as we reasonably can, within the boundaries of sound economic policy, while recognising underlying cost differences? If our policy approach did change, what do you think are the relevant factors for us to consider in deciding on the best future policy to regulating MCT?

2.37.2 Are there additional options (other than the six set out in that consultation) that we should consider? If so, what are they and what advantages/disadvantages do they offer?

2.37.3 Do you agree with our preliminary views set out for each of the options? If not, what are the additional factors that we should take into consideration, and why are they relevant to our analysis?

Stakeholder responses to the preliminary consultation

2.38 We received 30 responses, from a range of organisations and individuals. Most industry stakeholders, including all of the national MCPs, major MVNOs, BT and other fixed operators, agreed that regulation of MCT was still required and that some

[35] Relative to current rates calculated using a LRIC+ methodology.

form of charge control was likely to be the most appropriate way to regulate charges over the next four years.

2.39 Most stakeholders agreed with our preliminary assessment of market definition and SMP by indicating that no material change to the findings, drawn from our previous market review in 2007, was necessary for this review. Some stakeholders (O2, T-Mobile and C&W) argued that market definition (and in particular our SMP finding and likely remedy) should apply to all providers of call termination (i.e. including all the new market entrants).

2.40 Almost all stakeholders supported either LRIC+ or pure LRIC, in the short to medium term (although there was some interest in capacity-based charges for the longer term – that is, after 2015). Vodafone, O2, T-Mobile, Orange, Tesco Mobile and Virgin Media supported LRIC+, mostly on the grounds that it allocates costs efficiently, allows full cost recovery and is a well understood and proven approach. BT and H3G (and to a lesser degree C&W) supported pure LRIC, citing its role in providing more incentives for innovation and efficiency, and an overall gain in welfare. 'Terminate the Rate' also preferred this approach (a group of operators and representative bodies campaigning for lower rates).

2.41 Some proponents of LRIC+ argued that there are legal barriers to discarding LRIC+, specifically that we are bound to the EC Framework and Access Directives. Some also argued that our previous decisions, and the CAT's 'endorsement' in the appeal of the 2007 MTR decision, meant that strong justification would be required to deviate from this approach. For example, O2 noted that "evidence presented does not provide a robust justification for a proposed change of direction". On the other hand, some proponents of pure LRIC believed we must take the utmost account of the EC Recommendation; one stakeholder in particular noted that there is "no compelling reason not to implement the EC Recommendation approach"[36].

2.42 Both BT and H3G explicitly asked that we expedite the market review process to allow completion in advance of the new rates coming into effect in April 2011.

Additional stakeholder involvement

2.43 We met a wide range of stakeholders, with varied interests in MCT, throughout the process. These meetings were valuable in providing stakeholders with an overview of our evolving approach, and to enable us to get feedback on our working assumptions.

2.44 We organized an NRA workshop on MTR and cost modelling to gather insights into approaches to MCT regulation across Europe. The workshop was attended by representatives from eight other NRAs (the Netherlands, Italy, Denmark, Austria, Germany, Norway, France and Romania).

2.45 We also held a workshop with consumer groups. In summary, there was agreement that focusing our approach on a LRIC+ or pure LRIC-based charge control would benefit consumers by amongst other things being evolutionary (with respect to any changes in rates), not incurring any additional complexity for retail customers, maintaining a healthy balance of competition (including for new entrants) and considering any distributional impacts.

[36] Pg 2; http://www.ofcom.org.uk/consult/condocs/mobilecallterm/responses/Telefonica_02_UK_Limited.pdf

2.46 We also consulted widely with industry. We held a cost modelling workshop with operators, to allow us to explain various alternative options for our cost modelling assumptions, and receive feedback. In addition, we approached a range of DECT guard band[37] and VOIP operators, to explain our approach and improve our understanding of MCT issues that matter to more recent market entrants.

Commercial context

UK mobile sector overview

2.47 As discussed in our *Mobile Sector Assessment*[38], take-up of mobile services continues to grow, and has now reached about 89% of the total population. The proportion of households with access to a mobile phone (92%) has already overtaken the proportion of households with a fixed line (87%). We expect the number of mobile originated call minutes to overtake fixed call minutes by mid-2010.

2.48 The real price of mobile services has continued to fall over the five-year period to 2008, at an average annual rate of 11.9%.[39] Since consumers have tended to increase their use as the real cost falls, this does not indicate a reduction in average consumer spending, but it does show increasing value for money over the period and indicates that consumer prices are falling.

2.49 We do not observe super-normal profits being earned by any of the operators, which is consistent with the hypothesis that the market is competitive. Profitability since 2000 has been consistently lower in the UK than in Western Europe and the US.

2.50 Figure 5, we show the EBITDA (earnings before interest, depreciation and amortisation) margins for the top two MCPs in the UK, four other EU countries and the US. In the UK margins have ranged from 20% to 35% whereas margins have ranged from 25% to 50% in the EU countries and the US.[40]

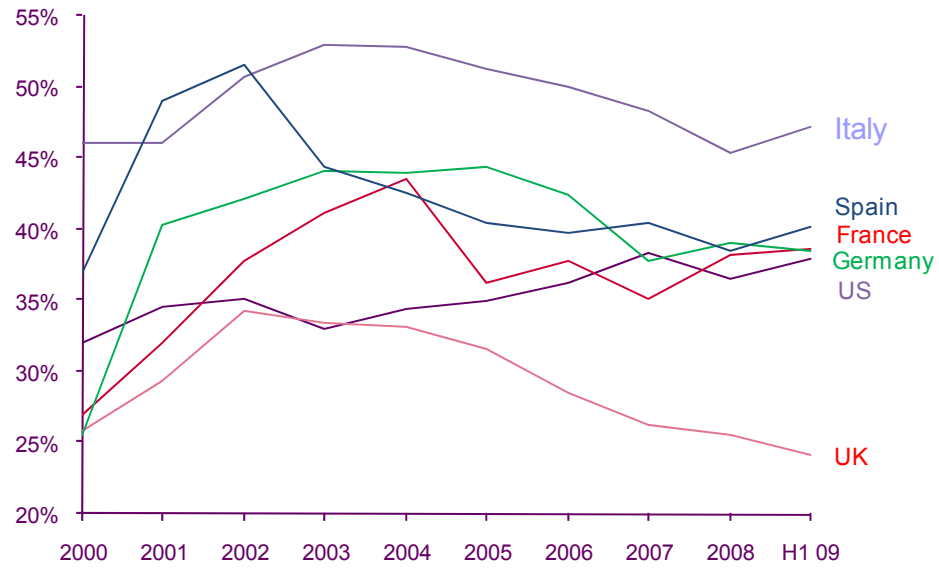
[37] spectrum auctioned in 2006 suitable for mobile technology

[38] http://www.ofcom.org.uk/consult/condocs/msa/statement/MSA_statement.pdf

[39] We analyse the cost of a basket of telecoms services as a means of comparing costs over time. This analysis derives the 'real cost' to the consumer by calculating the average price per minute for access and calls (and price per text message for mobile) in a year, and then defining the basket as the average number of minutes (and messages) used in 2008. Costs are then adjusted for changes in the consumer prices index (CPI) in order to provide a year-on-year comparison. This research is published annually in our *Communications Market* review.

[40] Note that EBITDA margins provide a high level view of profitability that is easily comparable between different operators in different countries. Because this measure of profitability is made before taking account of depreciation and amortisation, there is limited scope for different accounting policies relating to goodwill or licences to affect operating results. This is particularly important when comparing mobile operator profitability across countries, where different accounting treatments may prevail.

Figure 5: EBITDA margins - Top two mobile operators - US & Europe



Source: Published financial results

2.51 In September 2009 Deutsche Telekom and France Telecom announced their intention to merge their UK MCPs, T-Mobile UK and Orange UK. On 1 March 2010, the merging parties received regulatory approval from the European Commission for the proposed merger. This merger has now reduced the number of national MCPs in the UK from five to four.

European context

2.52 Questions of how best to approach regulating call termination, and the possibility of taking a different approach to setting regulated MTRs, have been the subject of active debate among European regulators, including the European Commission (EC) and the European Regulators Group (BEREC) in recent months.

2.53 In May last year the EC published a Recommendation on call termination.[41] The Recommendation set out how guidance by the EC should be taken into account by NRAs in setting rules regulating fixed and mobile call termination services. The main difference from the current approach is that the EC recommend adopting pure LRIC, rather than LRIC+.

2.54 The impact of such an approach would be to reduce MTRs currently in place across the EU, potentially by a significant amount.

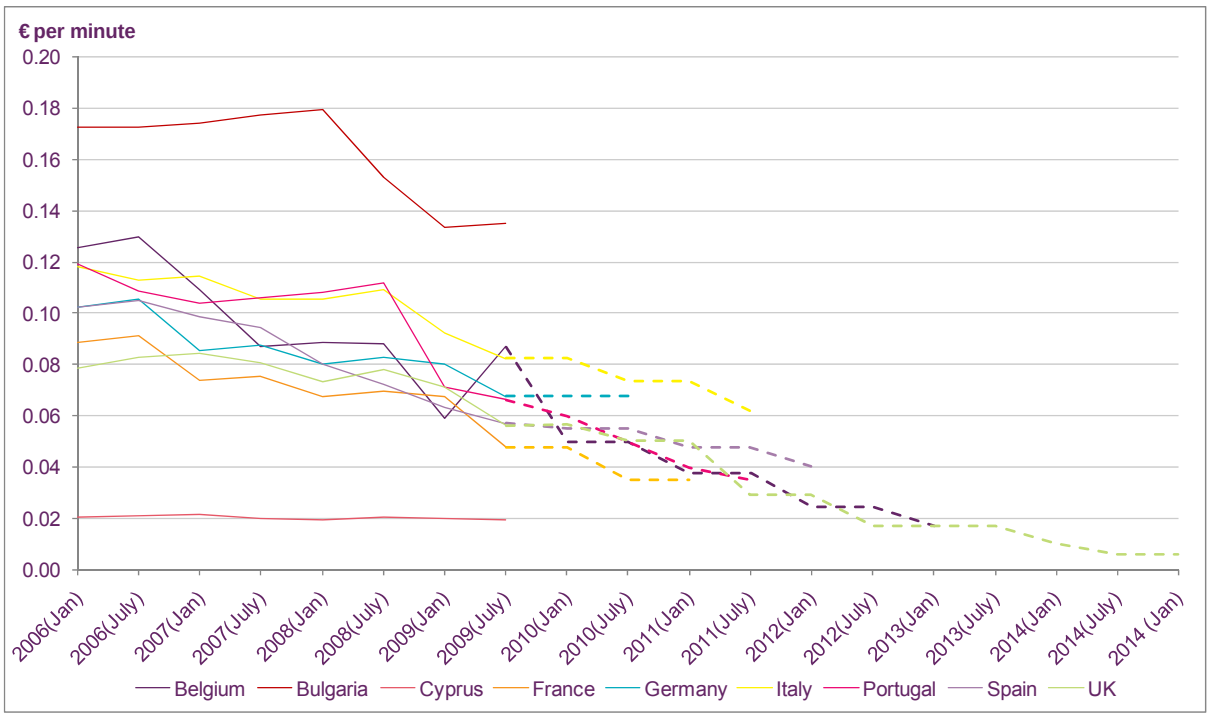
2.55 Other European NRAs have also been considering how to regulate MCT in the context of the EC's recommendation. Currently, Belgium is the only country that has already proposed to set a charge control in accordance with the EC Recommendation, but a number of other NRAs have ongoing mobile termination market reviews and will propose new rates later this year.[42] Figure 6 summarises the

41 http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/article_7/recom_term_rates_en.pdf

42 Lithuania has proposed a charge control using pure LRIC, but using a longer glide path than in the EC recommendation. Portugal, in its most recent charge control, has stated that it will be moving to pure LRIC before 2013 (see www.anacom.pt/render.jsp?contentId=1005902).

historic MTRs and future MTRs in some other European member states. For comparison, Ofcom's proposed glide path to pure LRIC is also shown.

Figure 6: Comparison of EU MTRs[43]



[43] Historic MTRs are taken from the biannual ERG MTR survey (source: http://www.erg.eu.int/documents/docs/index_en.htm). Future MTRs (dotted lines) are estimates on the basis of other European operators published charge controls glide paths (Source: Belgium - www.bipt.be/en/383/ShowDoc/3222/Communications/Press_release___BIPT_proposes_to_lower_voice_call_.aspx France - www.wirelessfederation.com/news/13738-arcep-agrees-to-slash-mobile-termination-rates-france, Germany - www.interimreport.telekom.de/site0109/en/konzernlagebericht/gesamtwirtschaftliche-situation/index.php?page=11, Italy - www.telecomsitaly.com/2008/05/mobile-termination-rates-glide-path, Portugal - www.anacom.pt/render.jsp?contentId=1005902, Spain – www.ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/article_7/summary_decisions/es_2009_0937.pdf). All charges are shown in 2008/09 prices.

Section 3

Market definition

Summary

3.1 This section sets out our proposed market definitions. These definitions underpin our proposals for the regulation of mobile call termination.

3.2 This section is structured as follows:

- a summary of our proposals;
- the framework for assessing market definition;
- a summary of responses to our May 2009 consultation (the May 2009 consultation);[44]
- Ofcom's response and product market definition analysis; and
- our analysis of the relevant geographic markets.

3.3 For some time, regulators in countries with 'calling party network pays' (CPNP) arrangements have recognised that, despite the competitiveness of retail markets, the competitive characteristics of wholesale markets for call termination (including mobile call termination (MCT)) tend to be different. They have often concluded that calls to a specific network, or to a specific set of customers (for example, defined by use of particular numbers), are properly viewed as being in a distinct market. As such, specific regulatory intervention is needed to address market power held by the operator or provider controlling the ability to terminate calls to that network or group of customers. A critical question in this market review is whether the market conditions that we anticipate in UK mobile voice call termination markets continue to exhibit these characteristics, or whether changes in technology, service innovation or commercial context mean that these views need to be adapted.

Our proposals

3.4 We have identified a number of separate markets for wholesale mobile voice call termination services. Each of these individual 'proposed markets', with respect to each mobile communications provider,[45] comprises:

> *"termination services[46] that are provided by [named mobile communications provider] (MCP) to another communications provider, for the termination of voice*

[44] Ofcom, *Wholesale mobile voice call termination: Preliminary consultation on future regulation*, Consultation, 20 May 2009, at http://www.ofcom.org.uk/consult/condocs/mobilecallterm/mobile_call_term.pdf

[45] An MCP is a person offering a mobile public electronic communications service offering wholesale mobile voice call termination services as a public electronic communications service ("PECS"), whether the entity operates public electronic communications network ("PECN") or not. It therefore includes those providers offering a public available mobile telephony service ("MTS") but is not limited to PSTN based calls.

[46] Call termination is the service necessary for an MCP to connect a caller with the intended recipient of the call originating from a caller on a different MCP's number range. If call termination was not

calls to UK mobile numbers that MCP has been allocated by Ofcom[47] in the area served by MCP and for which MCP is able to set the termination rate".

3.5 There are currently 50 proposed markets, corresponding to each of the 50 MCPs that we have identified in annex 7, Schedule 1. The set of MCPs that are offering call termination to mobile numbers allocated by us includes:

- the four largest MCPs (H3G, O2, Orange and T-Mobile, and Vodafone) that currently use 2G or 3G mobile networks to terminate mobile voice calls across the UK (and might use other technologies, such as LTE, before the end of the review period);
- the DECT guard-band-based MCPs (including C&W and MCom) that have deployed networks which are not national in scale but which, either in isolation or in combination with purchased national roaming services, terminate mobile voice calls across the UK[48]; and
- a range of other MCPs that use other technologies to provide mobile services across a range of areas in the UK.

3.6 We consider short message service (SMS) to be only a limited substitute for calling a mobile at the retail level; it does not act as a competitive constraint at the wholesale level. For that reason we do not consider wholesale SMS termination to be in the same market as wholesale voice call termination.[49] We have not reviewed wholesale SMS termination in this review, and make no proposals in this consultation to regulate SMS termination.

The framework for assessing market definition

3.7 The European Commission has identified *voice call termination on individual mobile networks* as a reference market that we are required to review, taking into account the particular competitive circumstances in the UK.[50] This is the starting point for our market review.

3.8 Although the term is not further defined in the 2007 Commission Recommendation, we consider that the recommendation to consider "individual mobile networks" means

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available, an MCP could only terminate calls to other customers on own number range. This service is referred to as wholesale because it is sold and purchased by MCPs rather than retail customers.

[47] Applicable to those mobile number designations and allocations that are made by Ofcom in accordance with the UK's National Telephone Numbering Plan. Further details of our telephone number allocation procedures can be found at, http://www.ofcom.org.uk/telecoms/ioi/numbers/applying_num/. For the purpose of market reviews 'within the UK' excludes of Jersey, Guernsey and the Isle of Man. Specifically, while Ofcom allocates mobile numbers to these UK protectorates, as a matter of administrative protocol, they operate under their own competition jurisdictions, separate to the UK and the EC.

[48] See paragraph 3.56.

[49] Wholesale SMS termination is the service necessary to enable delivery of an SMS (text) from a subscriber on one network, to another subscriber on another network (i.e. without it an operator could only deliver SMSs to customers on its own network). This service is referred to as wholesale because it is sold and purchased by network operators rather than retail customers.

[50] Identified as Market 7 in, which includes wholesale SMS termination within it, *Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services,*("the 2007 Commission Recommendation") *annex, p.8, at* http://ec.europa.eu/information_society/policy/ecomm/doc/library/proposals/rec_markets_en.pdf.

that we should review the position of every such network that is used to provide mobile services in the UK.

3.9 In order to meet the requirement to consider 'individual' networks, it is necessary to start with an assessment of how many such networks there might be in the UK.

3.10 The Recommendation does not define what constitutes a 'mobile' service, although that term is defined elsewhere in the European regulatory framework and UK law as being a service "designed or adapted to be capable of being used while in motion".[51] In keeping with the approach set out in the Commission's Guidelines on Market Definition, we have approached the question of what services are inside or outside the relevant market by reference to the principles of market definition in competition law, rather than focusing narrowly on the regulatory treatment of different services or technologies. In our previous market review, we focused on the (then) five national mobile communications providers' 2G and 3G services, which are clearly within the scope of this market review.We do not think it is necessary for the purposes of this market review (which focuses solely on the question of market power in call termination markets) to debate whether services using technologies such as WiFi and VoIP are 'mobile', beyond asking whether those services are traded within retail 'voice call' markets, offered as a competing alternative to making a call using a 2G or 3G network. For the purpose of a wholesale market review, it is not necessary to conclude exhaustively the question of whether these various retail services are all traded in one, and only one national retail market for mobile voice calls, or whether there are a number of relevant retail markets that may be sub-national. In either case, obtaining voice call termination services is essential to participate in those downstream markets, as set out in more detail in section 4.

3.11 We have excluded from the scope of this review any "mobile voice call" service that is not interconnected with the public switched telephone network (PSTN). Without PSTN interconnection, a voice service is only available to call other directly connected users of that service, and not to call users of conventional telephony services. By definition, PSTN interconnection requires the provider to operate a transmission system that is capable, at least, of originating and/or terminating voice calls identified by a telephone number. There are services already available in the market that do not use telephone numbers to establish voice contact between two users – for example, an on-net mobile VoIP service using email addresses or user names instead of telephone numbers.[52] We have not proposed any regulation of these services, although we do not make any finding about whether call termination on those services would fall within the Recommendation.[53]

3.12 Although the term 'network' is not defined in the Recommendation, an "electronic communications network" means, in the context of the European regulatory framework:

[51] For example, the National Telephone Numbering Plan defines a "Mobile Service" as being *"... a service consisting in the conveyance of Signals, by means of an Electronic Communications Network, where every Signal that is conveyed thereby has been, or is to be, conveyed through the agency of Wireless Telegraphy to or from Apparatus designed or adapted to be capable of being used while in motion;"*

[52] An example might be a 'Skype-to-Skype' call, activated by selecting the username of the user of Skype's VoIP service that the user wishes to contact.

[53] We note that, unless those services are interconnected to other services, the voice connections offered over those services are 'on-net' and, if we were to define a market for call termination in relation to those services (which we have not), the question of regulation of off-net traffic may be moot.

> "… transmission systems and, where applicable, switching or routing equipment and other resources which permit the conveyance of signals by wire, by radio, by optical or by other electromagnetic means, including satellite networks, fixed (circuit- and packet-switched, including Internet) and mobile terrestrial networks, electricity cable systems, to the extent that they are used for the purpose of transmitting signals, networks used for radio and television broadcasting, and cable television networks, irrespective of the type of information conveyed."

3.13 In some cases, the 'transmission system and … switching and routing equipment' constituting the relevant network may be modest – for example, a 'soft switch' facility that can make and receive calls using a larger operator to transit traffic. It need not include a radio access network, provided that control over voice call termination to users of that service sits with the relevant mobile communications provider operating that switching or routing equipment.

3.14 When a new electronic communications network seeks interconnection to the PSTN, an essential question is what numbers will be hosted on that network – that is, under what circumstances calls will be routed to, and switched by, that provider. Different network elements are involved in terminating a call, including switching elements (e.g., MSC in 2G network), transmission networks (e.g., backhaul) and authentication servers (e.g., AAA servers). A MCP may wholly own (or lease) all the elements necessary for terminating a call or may make use of third-party elements to terminate calls.

3.15 Of these different elements, control of the mobile number plays a pivotal role. The number acts as an identifier of the recipient (and hence, determines from whom the originator will purchase call termination). The MCP who holds the number, controls the ability to authenticate users, enabling them to receive calls. Put another way, and as discussed further in section 4, the consequences of controlling a given number range profoundly influence the competitive conditions under which call termination is purchased.

3.16 Applying this reasoning, a starting point for possible candidate services are those that fall within the definition of "Mobile Services" under the National Telephone Numbering Plan and have, therefore, been allocated mobile numbers. This definition in turn hinges on whether the service is capable of being used while in motion. In considering each of these candidate services, the critical issue to ask is whether call termination provided in relation to those services is constrained by competition.

3.17 This view is consistent with, for example, the position taken by the Commission in the Explanatory Memorandum to the Recommendation, which deals with the question of whether services are mobile in functional terms related to the ability of consumers to access them on a device that is capable of being used while in motion, and not in relation to specific technology:

> "Customers use mobile phones for different purposes, such as making a voice call or sending an SMS.[54]

[54] *Explanatory Note: Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (Second*

3.18 Therefore, voice call termination on individual mobile networks within the scope of the Recommendation and this market review, includes, at least, the ability to terminate calls to each of the entities that controls an electronic communications network that hosts (and controls access to) a mobile number range, whatever the technology used to provide that service.

3.19 The approach that we have adopted in this review, as with other market reviews, follows a well-established analytical approach to defining the boundaries to markets, examining the competitive constraints arising from potential demand and supply-side substitutes. This approach is set out in the Commission's guidelines.[55] In this context, a 'hypothetical monopolist test' (HMT)[56] is often used to identify whether potentially close demand-side and supply-side substitutes might be included in the same market as the focal product.[57] In addition to the HMT, we also consider how competitive conditions and prices vary within the potential market.[58]

The May 2009 consultation set out our preliminary views on markets

3.20 In our May 2009 consultation, we discussed the findings of the 2007 market review[59] in which we defined five relevant markets as the market(s) for wholesale voice call termination that was provided by *each* mobile network operator (MNO) to other communications providers.[60] We considered the developments that have occurred since 2007 and identified those that we thought were important to our considerations in this market review - specifically, those relating to callers' behaviour, call recipients' behaviour and the behaviour of originating communications providers.

3.21 We also discussed some services other than voice termination, such as SMS and data services, that were not included in our market definition from the 2007 market review but which might affect the boundaries to the relevant market(s). Finally, the May 2009 consultation asked whether the market boundaries might no longer be purely national, given the emergence of localised mobile services.

3.22 We asked for comments on our preliminary view that the relevant market was likely to be the same as that previously defined, or close to it. We invited views on current

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edition), Commission Staff Working Document, SEC(2007) 1483/2, 13/11/2007, at http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/sec_2007_1483_2.pdf.

[55] Annex 6 sets out the European framework and the various documents to which we have had regard, as well as n outline of the common approach to market analysis, including market definition.

[56] The HMT assesses whether a hypothetical monopoly supplier could profitably sustain a small but significant, non-transitory increase in price (SSNIP) above the competitive level. The HMT considers whether, in response to a SSNIP, consumer switching to demand-side substitutes or supply-side substitutes would result in a loss of sales to such a degree as to make this price rise unprofitable (given the associated changes to the hypothetical monopolists revenues and costs). If the price rise is found to be profitable, this suggests that there are not sufficiently close substitutes (to the focal product) and hence the market would include the focal product under consideration. If a SSNIP is unprofitable then the market is widened to include the closest substitute services.

[57] A similar analysis is carried out to determine the geographic scope of the market.

[58] More formally, the homogeneity of competitive conditions and the presence of common pricing constraints.

[59] *Mobile call termination*: Statement, 27 March 2007, at http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf.

[60] The term 'mobile network operator' was used in our May 2009 consultation, and so is repeated here to reflect that consultation and responses to it. We consider that the more relevant term is 'mobile communications provider', which is used in this document. For clarity, all of the companies identified as MNOs in the May 2009 consultation are also MCPs.

and prospective economic and technical developments that were likely to affect our initial view on market definition and as such whether it should change, during the period of the review, given those developments.

Responses to our May 2009 consultation

3.23 Overall, the 13 respondents who commented on market definition tended to agree either in whole or in part with our considerations.

3.24 Orange and H3G both agreed that forms of connection other than traditional voice calls, such as voice over internet protocol (VoIP), were unlikely to have developed enough by the end of the four-year review period to represent a material constraint on mobile termination rates (MTRs). However, H3G highlighted that the regulatory regime itself will affect how quickly these services develop.

3.25 Cable & Wireless (C&W) considered that data services, SMS and VoIP are not sufficiently interchangeable with traditional voice calls to be included in the same market.

3.26 Only T-Mobile disagreed fundamentally with our thinking. It argued, as in previous market reviews (and as mentioned in the May 2009 consultation), that MCT should not be defined as a separate market, but as part of a wider market for mobile services. As Ofcom has previously suggested that the mobile market is competitive, T-Mobile suggests that there is no need to regulate mobile call termination.

3.27 Two areas in particular drew comment from a number of respondents:

- **Fixed-mobile convergence (FMC)**: A number of respondents suggested that FMC could affect market boundaries in the future; with one highlighting that it has already begun (e.g. the availability of Skype on H3G). BBBritain[61] considered that current 'static' definitions do not reflect the daily experience of users freely substituting between internet-based communications and legacy fixed and mobile services. BBBritain (and H3G) also considered that these definitions and the associated regulations act as a barrier to the evolution of services.[62] Orange suggested that if we did consider FMC services they would be best defined as mobile services, because they rely on terminating via a RAN and they allow customers to move between networks without experiencing cell handover problems.

  However, others considered that there will be a limit to the relevance of some FMC services to the market definition. BT Group and Virgin Media both considered that convergence, while likely to develop further, is unlikely to appear to such a great extent that fixed and mobile termination services will be identifiable as a single economic market. BT Group highlighted that a single market would have implications for regulation of the relevant fixed markets. We consider the significance of FMC services in paragraph A4.87 of annex 4.

- **New entrants**: H3G, O2 and T-Mobile all suggested that the market definition should be extended to include new entrants, since the logic of the definition would apply equally to all operators which could be considered mobile and

[61] BBBritain represents an informal group of UK Broadband users.
[62] Both BBBritain and H3G's made similar arguments in relation to convergence between IP-based and circuit-switched services as well as FMC services.

which terminate calls, regardless of the size of their networks or the technology they employ. We consider the case of terminating operators other than the established MCPs in paragraphs 3.50 - 3.55 below.

3.28 Several respondents raised other points. Virgin Media considered that we had not adequately justified excluding self-supply of MCT (i.e. on-net calls) from the market definition i.e. why on-net calls are in a separate market. Both FleXtel and the Communications Management Association questioned the degree of competition (particularly in relation to price) in the retail market.

Summary of our response and market definition analysis

3.29 In the remainder of this section we provide a summary of our market definition, starting with the retail level. We then conduct an assessment at the wholesale level taking into account, among other things, the retail market assessment. This discussion needs to be read in conjunction with the more detailed analysis set out in annex 4.

Retail mobile voice calls

3.30 The question of whether the two parties to a mobile voice call (the called party and the caller) have any realistic alternative means of contacting one another is central to defining the boundaries of the retail market.

3.31 Before undertaking this assessment, we consider the wider context for MCT, including the commercial arrangements underpinning call termination, market research and information on the characteristics and preferences of retail customers. This information is relevant to our understanding of probable consumer behaviour and our assessment of whether competitive constraints on MCT are likely to be limited.

Importance of calling party pays arrangements

3.32 How far consumers react to any change in the retail price of calls is likely to be affected by the payment regime that operates in the UK, which is referred to as a 'calling party pays' (CPP) system. Under CPP, callers pay the entire cost of a retail call.[63] This retail price structure is then reflected in the structure of wholesale charges, with the MTR paid to the MCP of the party receiving the call (with the wholesale structure being referred to as CPNP, as discussed above).[64]

3.33 As a result, the party placing the call does not 'choose' the terminating operator from whom their own MCP must purchase call termination, except in so far that the calling party has elected to call the party on the terminating operator's number range. That called MCP can set the MTR knowing that no other alternative supplier of call termination to the called party exists. Normally, the choice of calling the party will be made without considering which MCP controls that number range - in other words, callers generally have little interest in, or even knowledge of, the network used by the person they wish to call.[65]

[63] There are certain exceptions to this where part or all of the retail call cost are paid by the receiving party, such as Freephone and special low cost call types.
[64] As with retail arrangements, there are some call types that adopt a different approach with the called party's network paying some or all of the cost of the call).
[65] See the evidence that we have set out in paragraph A4.63 in annex 4.

3.34 Despite this, a rise in MTRs may still theoretically trigger changes in behaviour, either by callers or by call recipients. The question is whether there is a sufficiently strong reaction by those making calls or those receiving them as to act as a competitive constraint on the MTRs being set. More specifically, using the SSNIP test used for market definition purposes, we assess whether a 5-10% increase in MTRSs would be likely to trigger such a significant reduction in inbound calls as to make that price increase unprofitable.[66] We consider the likelihood of such a reaction by each party to the call below.

Reaction by calling parties

3.35 The first question to consider is whether it is likely that calling parties would react strongly to higher (fixed and mobile) retail call charges arising from an increase in MTRs.

3.36 Two factors affect how far changes in calling consumers' decisions (retail demand substitution) would influence the profitability of an increase in wholesale MTRs: how far a change in this rate would affect the retail price faced by consumers; and how far consumers would react to any change in retail prices, such that the profit earned by the wholesale provider was reduced.

3.37 As we discuss in annex 13, there is no simple relationship between MTRs and retail price. We have therefore, for the purpose of market definition, assumed that a reasonable proportion of any wholesale price increase is reflected in retail tariffs, to assess whether any of the possible alternative options available to calling parties might impose sufficiently strong competitive constraints on providers setting MTRs.

3.38 The evidence suggests that consumers rarely know the price of calling different MCPs.[67] This suggests that callers are unlikely to respond significantly to changes in the prices of calling the MCP they want to reach. The research suggests that only very large changes in consumers' monthly bills might be detected and acted upon (i.e. by altering consumers' calling patterns).[68]

3.39 As well as awareness, consumer behaviour will change only if there is a viable alternative. We consider that there are a number of services that could potentially be viewed by callers as being substitutes:

- mobile-to-fixed as a substitute for off-net[69] mobile-to-mobile calls;
- mobile-to-mobile as a substitute for fixed-to-mobile calls;
- on-net mobile to mobile as a substitute for off-net mobile to mobile calls;
- other non-voice-based means of mobile communication (e.g. SMS);
- email, instant messaging (IM) and social networking sites (SNS);

[66] The SNNIP test is discussed in more detail in annex 4 in paragraphs A4.57 – A4.64
[67] See paragraph A4.64, annex 4, which cites Consumer Transparency in Telephone numbering, Research, February 2009.
[68] See paragraph A4.66, annex 4.
[69] An 'off-net' call in this context refers to a voice call made (originated) by consumers that use one network and that are made to (terminated) a consumer that uses another network. Conversely, an 'on-net' voice call is a call made from a customer using one mobile network to a customer using the same mobile network. MTRs only apply to off-net calls, as MCPs will not bill themselves for termination services.

- call-back arrangements; and
- VoIP.

3.40 Our view (set out in detail in paragraphs A4.70 - A4.102 and A4.114 of annex 4) is that none of these services would *individually or collectively* provide a suitable substitute for a voice call to a mobile number in a sufficient number of instances to present a constraint on a hypothetical monopolist of termination rates.[70] For example, in the case of fixed-line and non-voice-based means of communication, the services are not sufficiently similar to a mobile voice service. In other cases, such as switching calls to on-net (for example, by establishing a closed user group), call-back arrangements and VoIP, all require additional steps to be taken on the part of the called party and to coordinate this with the calling party. We think that it is unlikely for this behaviour to occur in response to a limited price increase in MTRs (5% to 10%), particularly since, in many cases, consumers could already benefit from lower prices by adopting such behaviour.[71]

3.41 This information, combined with the calling party pays arrangements and general lack of consumer awareness and sensitivity to termination charges, suggests that consumers would be unlikely to reduce the number of calls they make by a significant amount in the event that MTRs increased by a small amount.

Reaction by called parties

3.42 As the calling party pays, in most instances the called party will be less concerned about the MTR paid by on the caller's MCP. Logically, as the called party does not pay the termination charge, he or she would be less motivated to seek (available) alternatives if the price of MCT were to increase.

3.43 In annex 4, we note that there are some available substitutes. First, a consumer could switch networks, so that the majority of his/her calls were mobile-to-mobile calls and made on-net (i.e. calls to friends and family were coordinated so that they were all on the same mobile network). Market research suggests that this is not an important factor in consumers' choice of MCP (see paragraphs A4.81 and A4.105). Other options include consumers setting up multiple calls or making use of VoIP-based services to avoid termination charges. Although some individuals may adopt such behaviour, our view is that these are unlikely to provide a sufficient competitive constraint.[72]

3.44 In addition to the demand-side substitution issues above, we do not consider it likely that, within the period covered by this review, it will be possible to bypass the MCP to which a call recipient's mobile number is allocated, in order to connect a call to that number. Therefore the retail market does not need to be widened on the basis of retail supply-side substitution possibilities.

[70] It should be noted that, even were other services included in the relevant retail market, this would not automatically imply there was an indirect constraint. The relevant test would be whether a SSNIP in wholesale termination charges (which might translate to a much smaller increase in prices at the retail level) would induce enough consumers to switch to the alternative services in the market to impose a competitive constraint.

[71] For example, many MCPs already offer tariffs which effectively give members of a closed user group on the same network free calls if one member pays an additional monthly fee. However, the Jigsaw research suggests that only 7% of respondents chose their current network on the basis that friends/family used the same network

[72] Specifically, in a market definition context a price increase of 5-10% is unlikely to induce such behaviour on a sufficient number of callers to make this price increase unprofitable.

Wholesale assessment - direct competitive constraints

3.45 The starting point for market analysis is the wholesale supply of services between MCPs, triggered when a user makes a call to a mobile number. What services are being provided, and what alternative services exist that might compete with them?

3.46 Paragraphs 2.4 to 2.7 describe the provision of call termination by the terminating provider, needed to enable the originating provider to offer its customer a call to the desired party. At the wholesale level, if there are realistic alternatives to acquiring MCT from the provider which serves the called party, this would represent a direct competitive constraint. These competitive constraints could arise due to demand-side substitution or supply-side substitution.

3.47 In principle, any alternative means of delivering a call to a called mobile user would provide a competitive constraint on MCT and should be included in the market. In practice, only the MCP providing the mobile service is able (a) to determine the location of the called user (as location information is kept within the Home Location register or other functional equivalent element in the MCP's own network) and (b) to access that user's device in order to deliver the call (for example, by controlling access and user authentication processes). This means that, in practice, the MCP that controls a number range controls termination to each of the numbers in that range. An originating operator cannot purchase voice call termination services from another MCP in order to terminate calls to one of those numbers (and hence there are no wholesale demand-side substitutes), nor can other providers switch into another MCP's number range to provide wholesale voice call termination to one of those numbers (and hence there are no wholesale supply-side substitutes).

3.48 We therefore consider that there are no significant direct competitive constraints on an MCP's ability to set MTRs above the competitive level for call termination to each number falling within a number range they control (that is, that has been allocated to them). This is true whether a call is terminated via internet protocol (IP) -based systems or terminated via circuit-switched technology. Therefore it is our view that calls made to mobile numbers which utilise IP termination (for example, offered over mobile data networks, but using mobile numbers) should also fall within the market for wholesale voice call termination.

3.49 We therefore believe that a hypothetical monopoly supplier of MCTs to any particular allocated number would be able profitably to raise the price of MTRs by 5%-10% above the competitive levels, so the market definition should not be widened beyond the wholesale supply of MCT by each MCP to other communications providers, for each number allocated to that MCP.

Broadening mobile voice call termination beyond a call to an individual mobile number

3.50 The market definition analysis summarised above considered whether there are likely to be any significant constraints on a MCP's ability to set MTRs for voice calls to an *individual* mobile number. Our proposed conclusion is that there is not any significant constraint. However, we see strong arguments for widening the market definition from individual mobile numbers, to the level of all of the numbers in a particular allocated number range held by a single MCP.[73] In particular, we consider that the provision of off-net MCT to different numbers held by the same MCP should be included in the same market because:

[73] See Annex 4, paragraphs A4.125 - A4.127

- An MCP is likely to face homogeneous competitive conditions in providing wholesale mobile voice call termination to the different numbers in its number range, which implies that its conduct in supplying this service in relation to different numbers is likely to be similar; and

- MCPs generally face a common pricing constraint through their billing systems, which would make it difficult/costly to charge different prices for MCT to different numbers, even if they wanted to.

3.51 As a result, MCPs generally charge the same termination rate for off-net calls made to the different mobile numbers in their number range. However, on-net calls are a different consideration. In other wholesale markets, parties decide between purchasing wholesale inputs and providing them for themselves, e.g. through building infrastructure, and thus the cost of self-supply is a relevant consideration when setting wholesale prices. However, in the case of MCT a purchaser cannot choose to self-supply termination, as MCT can only be purchased from the number range holder. MTRs only relate to charges to third parties – a charge for on-net termination would be meaningless as a MCP will not bill itself for termination.

3.52 A second exception is the case of termination of calls to ported numbers. Here, the current portability arrangements mean that termination charges for a ported number are not set by the network to which the number has been ported (the recipient network) but by the network to which the number was initially allocated (the range holder) as the terminating call is routed via the range holder's switch. This process is called indirect routing, and is discussed further in a consultation that is published in parallel with this consultation.[74]

3.53 The implication of this is that the proposed market for an individual MCP only extends over those mobile numbers for which it can set the MTR. Therefore, under the current regime for charging arrangements for mobile number portability, calls to numbers that that are ported-in to an MCP's network will not be within the proposed market within which that MCP operates. However those mobile numbers will remain within the scope of the market for the original mobile number range holder, as it is this MCP that first receives the call on its network (and can set the MTR) before it routes the call onward to the current recipient's MCP. If this indirect routing process were to change during the period of this market review, e.g. changing to direct routing (where the call is routed directly to the recipient network), we would need to consider the implications of those changes on a case-by-case basis.[75] For the same reason, termination of calls to mobile numbers that have been ported out are included in the proposed market. This is because the MCP still determines the charge for terminating voice calls to these mobile numbers, even though it does not retain this revenue, and it will be subject to the same common pricing constraints that it faces in setting MTRs for calls to its own number range. Since we are proposing to set symmetrical rates for all MCPs after an initial 12-month period, as discussed later in the document, the treatment of ported calls will, in effect, have no commercial impact on the MCPs from 1 April 2012.

[74] http://www.ofcom.org.uk/consult/condocs/gc18_routing/statement

[75] In a Statement published today http://www.ofcom.org.uk/consult/condocs/gc18_routing/statement on Routing Calls to Ported Telephone Numbers we explain that our base case net present value ("NPV") of moving to direct routing for mobile originated calls to ported mobile numbers is less than £10m over 10 years. This amounts to a small average annual benefit in the range of 1p to 2p per year for each mobile phone subscriber in the UK. For reasons set out in our Statement, we consider that no regulatory intervention is appropriate at this time and therefore, we are not making any changes to the existing regulation of number portability in relation to direct routing.

Mobile voice call termination provided by mobile communications providers other than the established MCPs

3.54 At the time of our previous market review, only five MCPs in the UK operated access networks of broadly national reach (H3G, O2, Orange, T-Mobile and Vodafone). Since then, we have seen consolidation of two of these players via a joint venture[76] and the entry of a number of new MCPs to the market. In addition, developments such as ongoing spectrum auctions and liberalisation have increased the likelihood that more new players will provide their own mobile services (and hence MCT) in the foreseeable future.

3.55 As well as those operating their own networks, we also observe that there is a strong and diverse 'virtual' mobile network operators (MVNO) sector, and entry by communications providers with entirely different business models to the incumbents.

MCPs with access to licensed wireless spectrum

3.56 In addition to the four largest MCPs, a number of new MCPs (for example, C&W and MCom) are providing mobile services using the DECT guard-band spectrum, and new infrastructure, to terminate calls to UK mobile numbers. While some MCPs are doing this by combining infrastructure roll-out and roaming agreements, others have chosen initially to target specific areas. Common to these new MCPs, as with the four largest MCPs, is their ability to set termination rates. Specifically, for a caller to reach a mobile number allocated to one of the new entrants, the originating provider must connect the call by routing the call to that entrant's network (specifically, their switching and routing equipment) and so being subject to the new entrant's termination charge. Therefore, we consider that the analysis put forward here also applies to the new entrant MCPs with their own wireless networks - specifically, that these MCPs have the same ability to set the MTR for mobile numbers allocated to them.

Mobile Virtual Network Operators (MVNOs)

3.57 MVNOs are mobile communications providers that do not operate a physical mobile network directly but which purchase wholesale services from a mobile network operator.[77]

3.58 As set out in paragraph A4.13, the UK MVNO sector is thriving, with a diverse set of providers. The extent to which a MVNO could influence the MTR it receives depends on its relationship with its partner MCP. We understand that most UK providers who describe themselves as MVNOs do not control a switch which hosts a number range, but rely on their host network for numbers that have been allocated to that network operator for numbers to be issued to their customers. Therefore calls to their subscribers are routed directly to the host MCP's network and originating operators pay the host MCP directly for termination.

[76] *Mergers: Commission approves proposed merger between UK subsidiaries of France Telecom and Deutsche Telekom, subject to conditions*, IP/10/08, 1 March 2010, at http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/208&format=HTML&aged=0&language=EN&guiLanguage=en. For further information on this case (M.5650), see http://ec.europa.eu/competition/mergers/cases/index/m113.html#m_5650.

[77] The term 'MVNO' is used in slightly different ways in different markets within the EU. In the UK, the term MVNO is defined as any retail mobile communications provider who does not operate a mobile communications network. For the most part, this means that MVNOs restrict their activity to retail and distribution activities, signing up customers and operating platforms such as pre-paid billing and customer service platforms.

3.59 Where an MVNO does control a switch that hosts a number range, and is therefore able to control the MTR, termination of calls to that MVNO's number range constitute mobile voice call termination services on that MVNO's network and, by applying the same logic, would represent a separate MCT market.[78]

Other new entrant MCPs

3.60 Our analysis is that the correct application of the principles of market definition implies that if a provider offers call termination to a mobile number range to other providers, and can set a charge for this, the provision of call termination to numbers in that range falls within a different market to call termination to numbers in any other range. This is true irrespective of the size of the range, or the size and nature of the commercial operations of that provider.

3.61 Some providers do not offer services using a typical mobile access network. Instead, these operators terminate calls by transferring them as a data service across the internet (for example, over a Wi-Fi network) to a mobile number. This may have different functions and characteristics (for example, mobility may be less extensive, and in some cases a call to a mobile number provided by one of these operators may at certain times be routed to a mobile device and at others over other forms of broadband access). For example, when a number is registered with some operators (such as Truphone), this number can be used to make calls from, and receive calls on,a fixed line, (such as through a desktop computer), or a mobile. As such, a call to such a number can be a call to a mobile at one time, but a call to a fixed line at another. Moreover, the choice of termination network is something that could be replicated by the four largest MCPs if they wished to do so. As set out in annex 4, on market definition, we do not consider that this alters the consumer's experience of being able to reach the called party wherever they are (including on the move).

Q 3.1 : Do you agree with our views on whether and when new MCPs should form separate markets? Are there any factors we have not considered which should inform this view?

Q 3.2: Are there any other types of providers we should also consider?

Mobile voice call termination call types

3.62 For convenience, the table below sets out our views on how termination of different call types falls within, or outside, the markets we propose to define, and the corresponding decision we took in the 2007 MCT statement. The reasoning for the proposals is set out in annex 4 (paragraphs A4.136-A4.137) and annex 5.

[78] As previously noted, this would mean, by definition, that the provider is not, strictly speaking, purely an 'MVNO' anymore; they are operating a telecommunications network, even if that only relates to switching and call routing equipment.

Comparison of call types included in our proposed 2010/11 market review

Type of Call	2007 market review	Proposed market
Voice call	Terminated on mobile network only	Terminated to a mobile number
Off-net [1]	✓	✓
Ported-in	✓	×
Ported-out	×	✓
Calls to voicemail	×	✓
Voice calls to mobile terminating on IP	×	✓
National roaming [2]	✓	✓
Call forward (including international)	×	✓

Source: Ofcom 2010

Notes:(1) DECT guard band MCPs (C&W, Colt and MCOM), femtocells and picocells may have been captured by the market defined in 2007 had they been operational technologies at the time.
(2) For example, H3G or C&W use a 2G MNO's network to provide full UK coverage.

3.63 In 2007, because there were few relevant smaller mobile networks, and because all the large networks operated a very specific set of voice services (using 2G and/or 3G technology), it was possible to define a technologically-specific form of defined market, which was applied to those five radio access networks (RANs).

3.64 In the past, the RAN was an effective proxy for the 'network' (described in the Recommendation) as almost all calls were transmitted via a fully integrated 2G/3G-based network. The market has now developed so that other methods of transmitting a call to an end user's mobile number have become more common. Based on close consideration of the Commission's Recommendation, Explanatory Memorandum and Guidelines, we believe that the term 'network' is sufficiently flexible that it can be applied in a way that is consistent with these developments. Our proposals are based on our finding that the nature and type of mobile 'networks' in the UK has evolved, and it is necessary to consider all networks that provide mobile voice call termination, regardless of the underlying technology. A particularly important feature of mobile networks, common to all networks offering voice call termination that is capable of being used while in motion, regardless of their access technology, is the control of a mobile number range, offering customers the ability to receive calls to a mobile number. It is the control over switching and routing of calls to this number range that is unique and cannot be replicated by any other provider – not the carriage of those calls over a particular mobile access network (such as a 2G or 3G network).

3.65 This implies that certain call types are now included that were not included in our 2007 MCT market review. For example, in the 2007 review, call types that were not transmitted over the RAN, e.g. voicemail, were excluded from the market. We now propose that they are included in the proposed market.

3.66 This reflects the fact that competitive conditions are similar (i.e. the MCP can control the termination rate) irrespective of whether the voice call terminates on a mobile or another technology (such as IP), or whether that call is, for example, routed on to voicemail. Moreover, this addresses the fact that MCPs are not usually able to distinguish, for billing purposes, between a call that is terminated to voicemail and one that is made on its own network. This also highlights why we consider it appropriate to focus on the ability of a provider of an individual mobile network (large or small) to control call termination for all call types to a specific mobile number range. In practice, these two concepts are often merged (since a particular network

will be operated by a MCP which applies for one or more number ranges from us that will be used exclusively by a customer of that provider).[79]

Q 3.3: Do you agree with our views on the specific call types that should be included in the market? Are there any factors we have not considered which should inform this view, resulting in call types other than those identified being either included or excluded from the market?

Geographic market definition

3.67 The geographic extent of each proposed market is defined as being the area across which mobile numbers within a given number range are served by the MCP, and for which it controls the termination rate.[80] The competitive conditions an MCP faces in providing MCT services are not affected by the number of other operators in a particular area, since we do not consider that voice call termination provided by one MCP can be a substitute for termination provided by another. Even if there are more MCPs terminating calls in a particular geographic area, these operators cannot offer MCT for calls to other operators' numbers.

3.68 Further, the conditions of competition that an operator faces in terminating voice calls are not affected by whether the MCP uses its own network assets to provide the service, or whether it 'piggybacks' on another network, either through a roaming agreement or by using other technologies, e.g. Wi-Fi. Since an originating operator would still need to interconnect with such a party, this party will control the mobile termination rate on its number range, even when the call terminates in an area outside its own network coverage (see paragraph A4.140). Hence the geographic market is not constrained by the geographic reach of the MCP's own network infrastructure.

3.69 The only way to terminate a mobile voice call where the call recipient is currently located in the UK is by terminating that call on the UK network serving the recipient (i.e. it is not possible to terminate that call on a network located outside the UK). Accordingly, we do not consider that the relevant geographic market is wider than the UK.

3.70 Therefore our proposed view is that the geographic market for mobile voice call termination for each proposed market should be the area of the UK within which that MCP provides and can set a charge for mobile voice call termination services.

3.71 For many MCPs, this will be national – for example, for all of the larger MCPs which operate a national network, and for those networks which use national roaming to provide the same reach as the large MCPs, or because those services are offered in ways that use, for example, underlying broadband data services with national reach. For other operators, this area will be limited to the area served by their own network.

Q 3.4: Do you agree with our view of that the geographic market for each of our proposed markets should be the area of the UK within which the MCP provides and can set a charge for mobile voice call termination services?

[79] This ignores the complication introduced by the fact that numbers can be 'ported' from one network to another – see annex 4.
[80] For more information, see annex 4, paragraphs A4.134-A4.142

Conclusions on market definition

3.72 Consistent with the 2007 Commission Recommendation, we have identified a number of separate markets for mobile voice call termination on individual mobile networks. Each of these individual proposed markets, with respect to each mobile communications provider,[81] comprises:

> *"termination services[82] that are provided by [named mobile communications provider] ("MCP") to another communications provider, for the termination of voice calls to UK mobile numbers that MCP has been allocated by Ofcom[83] in the area served by MCP and for which MCP is able to set the termination rate".*

MCP	Mobile Numbers(1)	Geographic scope
24 Seven Communications Ltd	07911 2, 07911 8, 07406 6, 07893 1	The area served by 24 Seven Communications Ltd within the UK
Awayphone Ltd	07537 5	The area served by Awayphone Ltd within the UK
British Telecommunications plc	07777 0-9	The area served by BT plc, which is national (UK) in scope
Cable & Wireless plc	07822 8	The area served by Cable & Wireless plc, which is national (UK) in scope
Callax Ltd	07874 5, 07978 0	The area served by Callax Ltd within the UK
CFL Communications Ltd	07537 7	The area served by CFL Communications Ltd within the UK

[81] The definition of an MCP comprises those market participants offering wholesale mobile voice call termination services as a public electronic communications service (PECS), whether the entity is a public electronic communications network (PECN) or not. It therefore includes those mobile service providers (MSP), offering a publically available telephone service (PATS) based mobile telephony service (MTS) but is not limited to PSTN-based calls.

[82] Call termination is the service necessary for an MCP to connect a caller with the intended recipient of the call originating from a caller on a different MCP's number range. If call termination was not available, an MCP could only terminate calls to other customers on own number range. This service is referred to as wholesale because it is sold and purchased by MCPs rather than retail customers.

[83] Applicable to those mobile number designations and allocations that are made by Ofcom in accordance with the UK's National Telephone Numbering Plan. Further details of our telephone number allocation procedures can be found at, http://www.ofcom.org.uk/telecoms/ioi/numbers/applying_num/. For the purpose of market reviews 'within the UK' excludes of Jersey, Guernsey and the Isle of Man. Specifically, while Ofcom allocates mobile numbers to these UK protectorates, as a matter of administrative protocol, they operate under their own competition jurisdictions, separate to the UK and the EC.

Cheers International Sales Ltd	07978 4, 07406 0-2 07822 7	The area served by Cheers International Sales Ltd within the UK
Citrus Telecommunications Ltd	07874 4	The area served by Citrus Telecommunications within the UK
Coralbridge Ltd	07520 7	The area served by Coralbridge Ltd within the UK
Core Communication Services Ltd	07520 4, 07744 2-9, 07755 2-5	The area served by Core Communication Services Ltd within the UK
Core Telecom Ltd	07559 7	The area served by Core Telecom Ltd within the UK
D2See Ltd (Orca Digital Ltd)	07520 8	The area served by D2See Ltd (Orca Digital Ltd) within the UK
Edge Telecom Ltd	07892 2	The area served by Edge Telecom Ltd within the UK
FleXtel Ltd	07822 0, 7892 5	The area served by FleXtel Ltd within the UK
Hutchison 3G UK Ltd	07400 0-9, 07401 0-9, 07402 0-9, 07403 0-9, 07533 0-9, 07575 0-9, 07576 0-9, 07577 0-9, 07578 0-9, 07588 0-9, 07723 0-9, 07727 0-9, 07728 0-9, 07735 0-9, 07737 0-9, 07782 0-9, 07828 0-9, 07830 0-9, 07832 0-9, 07838 0-9, 07846 0-9, 07848 0-9, 07853 0-9, 07859 0-9, 07861 0-9, 07862 0-9, 07863 0-9, 07865 0-9, 07868 0-9, 07869 0-9, 07877 0-9, 07878 0-9, 07882 0-9, 07883 0-9, 07886 0-9, 07888 0-9, 07897 0-9, 07898 0-9, 07915 0-9, 07916 0-9, 07988 0-9	The area served by Hutchison 3G UK Ltd, which is national (UK) in scope
Invomo Ltd	07520 9	The area served by Invomo Ltd within the UK
IV Response Ltd	07978 9	The area served by IV Response Ltd within the UK

Lleida.net Serveis Telematics Ltd	07559 6	The area served by Lleida.net Serveis Telematics Ltd within the UK
Lycamobile UK Ltd	07404 0-9, 07405 0-9	The area served by Lycamobile UK Ltd within the UK
Magrathea Telecommunications Ltd	07893 0	The area served by Magrathea Telecommunications Ltd within the UK
Mars Communications Ltd	07559 0	The area served by Mars Communications Ltd within the UK
Mundio Mobile Ltd	07520 2, 07589 4-7, 07892 1	The area served by Mundio Mobile Ltd within the UK
Nationwide Telephone Assistance Ltd	07700 1	The area served by Nationwide Telephone Assistance Ltd within the UK
O2 (UK) Ltd	07510 0-9, 07511 0-9, 07512 0-9, 07513 0-9, 07514 0-9, 07515 0-9, 07516 0-9, 07517 0-9, 07517 1-9, 07518 0-9, 07518 0-9, 07519 0-9, 07521 0-9, 07522 0-9, 07523 0-9, 07525 0-9, 07526 0-9, 07540 0-9, 07541 0-9, 07542 0-9, 07543 0-9, 07544 0-9, 07545 0-9, 07546 0-9, 07547 0-9, 07548 0-9, 07549 0-9, 07560 0-9, 07561 0-9, 07562 0-9, 07563 0-9, 07564 0-9, 07565 0-9, 07566 0-9, 07567 0-9, 07568 0-9, 07569 0-9, 07590 0-9, 07591 0-9, 07592 0-9, 07593 0-9, 07594 0-9, 07595 0-9, 07596 0-9, 07597 0-9, 07598 0-9, 07599 0-9, 07701 0-9, 07702 0-9, 07703 0-9, 07704 0-9, 07705 0-9, 07706 0-9, 07707 0-9, 07708 0-9, 07709 0-9, 07710 0-9, 07711 0-9, 07712 0-9, 07713 0-9, 07714 0-9, 07715 0-9, 07716 0-9, 07718 0-9, 07719 0-9, 07720 0-9, 07724 0-9, 07725 0-9, 07729 0-9, 07730 0-9, 07731 0-9, 07732 0-9, 07734 0-9, 07736 0-9, 07738 0-9, 07739 0-9, 07740 0-9, 07742 0-9, 07743 0-9, 07745 0-9, 07746 0-9, 07749 0-9, 07750 0-9, 07751 0-9, 07752 0-9, 07753 0-9, 07754 0-9, 07756 0-9, 07759 0-9, 07761 0-9, 07762 0-9, 07763 0-9, 07764 0-9, 07783 0-9, 07784 0-9, 07793 0-9, 07801 0-9, 07802 0-9, 07803 0-9,	The area served by O2 UK Ltd, which is national (UK) in scope

	07808 0-9, 07809 0-9, 07819 0-9, 07820 0-9, 07821 0-9, 07834 0-9, 07835 0-9, 07840 0-9, 07841 0-9, 07842 0-9, 07843 0-9, 07844 0-9, 07845 0-9, 07849 0-9, 07850 0-9, 07851 0-9, 07856 0-9, 07857 0-9, 07858 0-9, 07860 0-9, 07860 0-9, 07864 0-9, 07871 0-9, 07872 0-9, 07873 0-9, 07874 0-3, 07874 6-9, 07885 0-9, 07889 0-9, 07892 3-4, 07892 6-9, 07893 2, 07893 4-7, 07894 0-9, 07895 0-9, 07902 0-9, 07907 0-9, 07912 0-9, 07921 0-9, 07922 0-9, 7923 0-9, 07925 0-9, 7926 0-9, 07927 0-9, 07928 0-9, 07933 0-9, 07934 0-9, 07935 0-9, 07936 0-9, 07938 0-9, 07955 0-9, 07999 0-9.	
OnePhone (UK) Ltd	07520 1	
Opal Telecom Ltd	07822 2	
Orange Ltd	07409 0-9, 07416 0-9, 07419 0-9, 07420 0-9, 07421 0-9, 07422 0-9, 07527 0-9, 07528 0-9, 07529 0-9, 07530 0-9, 07531 0-9, 07532 0-4, 07536 0-9, 07556 0-9, 07579 0-9, 07580 0-9, 07581 0-9, 07582 0-9, 07583 0-9, 07772 0-9, 07773 0-9, 07779 0-9, 07790 0-9, 07791 0-9, 07792 0-9, 07794 0-9, 07800 0-9, 07805 0-9, 07807 0-9, 07811 0-9, 07812 0-9, 07813 0-9, 07814 0-9, 07815 0-9, 07816 0-9, 07817 0-9, 07837 0-9, 07854 0-9, 07855 0-9, 07866 0-9, 07870 0-9, 07875 0-9, 07890 0-9, 07891 0-9, 07896 0-9, 07929 0-9, 07964 0-9, 07965 0-9, 07966 0-9, 07967 0-9, 07968 0-9, 07969 0-9, 07970 0-9, 7971 0-9, 07972 0-9, 07973 0-9, 07974 0-9, 07975 0-9, 07976 0-9, 07977 0-9, 7980 0-9, 07989 0-9.	The area served by Orange Ltd, which is national (UK) in scope
Orca Digital Ltd (D2See Ltd)	07520 8	The area served by D2See Ltd (Orca Digital Ltd) within the UK
Oxygen8 Communications UK Ltd	07589 1-3, 07822 9, 07978 6	The area served by Oxygen8 Communications UK Ltd within the UK
QX Telecom Ltd	07978 1	The area served by QX Telecom Ltd within the UK

Resilient Networks plc	07559 9	The area served by Resilient Networks plc within the UK
Sky Telecom Ltd	07872 7	The area served by Sky Telecom Ltd within the UK
Software Cellular Network Ltd	07408 0, 07408 8, 07408 9, 07559 4, 07978 8	The area served by Software Cellular Network Ltd within the UK
Sound Advertising Ltd	07537 6	The area served by Sound Advertising Ltd within the UK
Stour Marine Ltd	07537 1	The area served by Stour Marine Ltd within the UK
Subhan Universal Ltd	07520 3	The area served by Subhan Universal Ltd within the UK
Swiftnet Ltd	07822 1, 07537 3	The area served by Swiftnet Ltd within the UK
Switch Services Ltd	07864 4	The area served by Switch Services Ltd within the UK
Teledesign plc	07520 0	The area served by Teledesign plc within the UK
Telephony Services Ltd	07893 8, 07822 4, 07822 6	The area served by Telephony Services Ltd within the UK
TeleWare plc	07978 7	The area served by Teleware plc within the UK
Telswitch Limited	07559 8	The area served by Telswitch plc within the UK
TG Support Ltd	07406 7	The area served by TG Support Ltd within the UK
Tismi BV	07520 6	The area served by Tismi BV within the UK
T-Mobile (UK) Ltd	07504 0-9, 07505 0-9, 07506 0-9,	The area served by T-Mobile

	07507 0-9, 07508 0-9, 07534 0-9, 07535 0-9, 07538 0-9, 07539 0-9, 07550 0-9, 07572 0-9, 07573 0-9, 07574 0-9, 07722 0-9, 07726 0-9, 07757 0-9, 07758 0-9, 07804 0-9, 07806 0-9, 07847 0-9, 07852 0-9, 07903 0-9, 07904 0-9, 07905 0-9, 07906 0-9, 07908 0-9, 07910 0-9, 07913 0-9, 07914 0-9, 07930 0-9, 07931 0-9, 07932 0-9, 07939 0-9, 07940 0-9, 07941 0-9, 07942 0-9, 07943 0-9, 07944 0-9, 07945 0-9, 07946 0-9, 07947 0-9, 07948 0-9, 07949 0-9, 07950 0-9, 07951 0-9, 07952 0-9, 07953 0-9, 07954 0-9, 07956 0-9, 07957 0-9, 07958 0-9, 07959 0-9, 07960 0-9, 07961 0-9, 07962 0-9, 07963 0-9, 07981 0-9, 07982 0-9, 07983 0-9, 07984 0-9, 07985 0-9, 07986 0-9, 07987 0-9.	(UK) Ltd, which is national (UK) in scope
Titanium Ltd	07406 4	The area served by Titanium Ltd within the UK
Vectone Network Ltd	07822 5, 07978 5	The area served by Vectone Network Ltd within the UK
Vodafone Ltd	07407 0-9, 07423 0-9, 07500 0-9, 07501 0-9, 07502 0-9, 07503 0-9, 07537 4, 07551 0-9, 07552 0-9, 07553 0-9, 07554 0-9, 07555 0-9, 07557 0-9, 07570 0-9, 07584 0-9, 07585 0-9, 07586 0-9, 07587 0-9, 07717 0-9, 07721 0-9, 07733 0-9, 07741 0-9, 07747 0-9, 07748 0-9, 07760 0-9, 07765 0-9, 07766 0-9, 07767 0-9, 07768 0-9, 07769 0-9, 07770 0-9, 07771 0-9, 0774 0-9, 07775 0-9, 07776 0-9, 07778 0-9, 07780 0-9, 07785 0-9, 07786 0-9, 07787 0-9, 07788 0-9, 07789 0-9, 07795 0-9, 07796 0-9, 07798 0-9, 07799 0-9, 07810 0-9, 07818 0-9, 07823 0-9, 07824 0-9, 07825 0-9, 07826 0-9, 07827 0-9, 07831 0-9, 07833 0-9, 07836 0-9, 07867 0-9, 07876 0-9, 07879 0-9, 07880 0-9, 07881 0-9, 07884 0-9, 07887 0-9, 07899 0-9, 07900 0-9, 7901 0-9, 07909 0-9, 07917 0-9, 07918 0-9, 07919 0-9, 07920 0-9, 07979 0-9, 07990 0-9	The area served by Vodafone Ltd, which is national (UK) in scope
Wavecrest (UK) Ltd	07537 0	The area served by Wavecrest (UK) Ltd within the UK

Wire9 Telecom plc	07872 2, 07924 5, 07978 2, 07978 3	The area served by Wire9 Telecom plc within the UK
Yim Siam Telecom Ltd	07589 0, 07893 3	The area served by Yim Siam Telecom Ltd

Notes: [1] Those 11-digit Mobile Numbers, including the '0', allocated by Ofcom to the companies for the purpose of providing Mobile Services and identified from the designations that we define in table A1 of the National Telephone Numbering Plan (http://www.ofcom.org.uk/telecoms/ioi/numbers/numplan030809.pdf), identified by those numbers beginning 071 to 075 inclusive, and 077 to 079. We allocate mobile numbers in blocks of 100,000 numbers. Therefore, for each of the blocks identified in the table, the number range comprises those mobile numbers in the 07 range of 07XXX XXX XXX. For example, an allocation of 07XX1 comprises numbers 07XX1 000 000 – 07XX1 999 999. Where mobile numbers allocated by Ofcom have in turn been sub allocated to another MCP, which is in turn offering the termination of voice calls to UK mobile numbers, in a given area served by MCP and for which MCP is able to set the termination rate then we would consider that to be a separate Proposed Market.

3.73 As mentioned in paragraph 3.7 the 2007 Commission Recommendation requires us, as the relevant UK national regulatory authority, to analyse certain product and service markets, as listed. The list includes a wholesale-level market, which is defined as "voice call termination on individual mobile networks".

3.74 The market definition that we propose to adopt in this review, which is set out above, follows from the analysis (set out in summary in section 3 and in detail in annex 4) of competitive constraints. For this reason, we consider that all 50 of the proposed markets are substantively the same as 'market 7' identified in the 2007 Commissions Recommendation.

3.75 However, paragraph 2 of the 2007 Commission Recommendation states that national regulatory authorities should ensure that three criteria are cumulatively met, where markets identified differ from those in the list. The three criteria are: (a) there should be the presence of high and non-transitory barriers to entry, (b) there should be a market that does not tend toward effective competition within the relevant time horizon and (c) competition law alone should be insufficient to adequately address the market failures identified.

3.76 Given the approach that we have adopted to the definition of mobile networks, a narrow reading of the 2007 Commission Recommendation could suggest a difference between our definition and that of 'market 7'. For the reasons noted above, we think this would be an erroneous legal interpretation.

3.77 Should the 2007 Commission Recommendation be read in this way, we have, for the avoidance of doubt, applied the three criteria to the proposed markets and we consider that they have been met. Specifically, we consider barriers to entry at paragraph 4.47. We conclude that a lack of effective competition exists due to the presence of companies with SMP. At paragraph 6.40-6.45 we discuss why ex post application of competition law alone is insufficient.

Section 4

SMP assessment

Introduction

4.1 This section sets out our analysis of whether any of the mobile communications providers (MCPs) operating in one of the markets defined in Section 3 is able to act, to an appreciable extent, independently of competitors, customers and consumers – that is, whether they have significant market power (SMP) in that market.

4.2 The structure of this section is:

- a summary of our SMP findings;
- an outline of the SMP framework, including a definition of SMP, our power to make SMP determinations, and the criteria for its assessment;
- a summary of the responses to the May 2009 consultation, together with our responses to those submissions;[84]
- our SMP assessment, including:
  - the economic elements to the SMP assessments;
  - the relevant case law; and
  - consideration of the commercial context in which MCT is sold, the presence/absence of relevant regulation and the relative strength of countervailing buyer power (CBP); and
- our proposals for SMP determinations in each of the relevant markets.

Summary of our proposed SMP assessment

4.3 In section 3, we identified a number of separate markets for wholesale mobile voice call termination services. Each of these individual markets comprises a market for the provision of:

> *"termination services that are provided by [named mobile communications provider] (MCP) to another communications provider, for the termination of voice calls to UK mobile numbers that MCP has been allocated by Ofcom in the area served by MCP and for which MCP is able to set the termination rate".*

4.4 Our assessment of market power has identified that, for each of the individual proposed markets, the relevant undertaking (MCP) has SMP. For this reason, for each of the respective 50 proposed markets we intend to designate one MCP as the SMP provider. We have listed each of the 50 SMP MCPs in annex 7, Schedule 1. This list comprises the 'four largest' MCPs that operate their own national mobile

[84] Ofcom, *Wholesale mobile voice call termination: Preliminary consultation on future regulation*, Consultation, 20 May 2009, at http://www.ofcom.org.uk/consult/condocs/mobilecallterm/mobile_call_term.pdf

networks, and also includes a number of established and new entrant MCPs. Our proposal to designate these 50 MCPs with SMP is based on the following: [85]

- **Structural indicators – high and sustained market shares:** only the MCP that can terminate voice calls to the mobile numbers it has been allocated, and which are held by its subscribers. In effect, each MCP has 100% share of the relevant MCT market, and for each MCP, for the period they have operated in this market, this position has endured.

- **Barriers to market entry:** the combination of persistently high market shares held by MCPs in each of their proposed markets, together with the existence of high barriers to entry (both in terms of the likelihood of actual entry and threat of entry) leads us to a strong presumption that each MCP holds SMP. We have not identified any expected changes to the current calling party pays arrangements, or the introduction of new services, that would allow one MCP to compete in terminating calls by alternative means to another MCP's subscribers;

- **For some of the new entrant MCPs**; in some cases they have faced originating operators (typically the mobile operators whose MTRs are currently regulated) that have sought to reduce the new entrant MCPs' MTRs by applying pressure as relatively larger buyers of MCT.

  In some cases originating operators whose MTRs are currently regulated, have sought to reduce the MTRs charged by small MCPs by applying pressure as relatively larger buyers of MCT.[86] But this does not appear to have constrained price-setting behaviour appreciably, as the MTRs currently being set by new entrant MCPs are usually materially above the regulated MTRs set by the large MCPs. Given the strong presumption of SMP based on market shares and barriers to entry, we do not consider that there is clear and convincing evidence of sufficient CBP to constrain MCPs' price-setting behaviour.

The SMP framework, our powers, defining SMP and assessment criteria

Ofcom's power to make SMP determinations

4.5 Ofcom's power to make SMP determinations is contained in the Communications Act 2003 (the Act), which reflects the requirements of the European regulatory framework for the national regulatory authority to assess competition in defined markets and to impose future-looking (*ex ante*) regulation only where competition in those markets is found to be ineffective i.e. one or more undertakings have SMP. The details of those powers are set out in annex 6.

[85] Included here are the factors considered central to our current consideration of SMP in each of the Proposed markets. We have not provided details of the other criteria, which we consider, as previously, are not relevant to this assessment. Our consideration of the relevance of those other criteria to the previous SMP assessment can be found in our *Mobile Call Termination*, Statement, 27 March 2007, paragraphs 4.46-4.63, p. 61-65, at http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf.

[86] We do not know how frequently this has occurred, but we know this has occurred at least a few times as MCPs have brought dispute to us.

Definition of SMP

4.6 An undertaking is deemed to have SMP if, "…either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say, a position of economic strength affording it the power to behave to an appreciable extent independent of competitors, customers and ultimately consumers."[87] Furthermore, "Where an undertaking has significant market power on a specific market, it may also be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking."[88] It may therefore be the case that the leveraging of power in a related market is used to strengthen its market power in the relevant market that has been identified.

The criteria for assessing SMP

4.7 Our starting point, when assessing SMP, is the need to take account of the European Commission's SMP guidelines[89] (the SMP Guidelines) in considering whether to make a market power determination under the Act.

4.8 The SMP Guidelines identify market shares as being an important proxy for market power but recognise that high shares are not of themselves sufficient indicators of market power, and therefore set out other criteria relevant to an assessment of SMP.[90] The European Regulators' Group (ERG) has also issued a working paper on SMP (the ERG SMP Position) that builds on the SMP Guidelines. We have not listed all of the criteria here,[91] but focus on four broad areas contained within the SMP Guidelines and the ERG SMP Position that we think are most pertinent to the markets under consideration, namely:

- market shares;
- absence of potential competition;
- ease of market entry;
- control of infrastructure not easily replicated;
- pricing behaviour and price trends; and

[87] *Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services*, Official Journal of the European Communities, C165, 11/7/2002, paragraph 70, p 14-15, at: http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/smp_guidelines/c_16520020711en00060031.pdf
[88] *Ibid*, paragraph 83, pp. 17
[89] *Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services*, Official Journal of the European Communities, C165, 11/7/2002, p. 6-31, at: http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/smp_guidelines/c_16520020711en00060031.pdf
[90] *Ibid.,* paragraph 78, pp. 16
[91] *Revised ERG Working paper on the SMP concept for the new regulatory framework*, ERG (03) 09rev3, September 2005, at http://www.erg.eu.int/doc/publications/public_hearing_concept_smp/erg_03_09rev3_smp_common_concept.pdf

- absence of countervailing buyer power (CBP) and related criteria on costs and barriers to switching.

4.9 Our assessment of SMP in this document, based on the above criteria, is consistent with the approach we took in our two previous wholesale MCT Market Reviews.[92]

Treatment of existing regulation

4.10 When assessing whether SMP exists with respect to a particular market, we need to consider how to account for the effects of both existing and proposed regulation. Without taking this step, the assessment risks being incorrect, as operators with market power whose behaviour is currently constrained by existing regulation (or the threat of regulation) might not be detected. Therefore, assessing SMP in the relevant market requires consideration of a hypothetical market where neither regulation nor the threat of regulation exists. Specifically, we examine this counterfactual situation by:

- assuming the absence of any regulatory intervention in the proposed market - whether current or potential regulation - that arises or would arise from a finding of SMP; and

- controlling for the regulatory obligations in related but separate markets that are designed to address competition concerns in those markets and which are likely to influence any SMP finding in the proposed market. However, the fact that regulation has been put in place in related markets does not automatically mean that this regulation will be effective in preventing the exercise of SMP in the market in which it has been imposed.[93]

May 2009 consultation

4.11 In our May 2009 consultation, we included a summary of our view of SMP as it was presented in the 2007 MCT Statement. We highlighted the developments since the 2007 MCT Statement, and noted the potential importance of various technological developments in relation to SMP.

4.12 In the 2007 MCT Statement we concluded that:

- in each relevant market, there was one MCP that held a 100% market share;

- there were significant barriers to entry; and

- no other communications provider had sufficient CBP so as to mitigate or remove each MCP's market power.

4.13 We also noted that emerging technologies and VoIP had the potential to widen the market for wholesale MCT and could be relevant to our SMP assessment. If these

[92] Ofcom, *Wholesale Mobile Voice Call Termination*, Statement, 1 June 2004, at http://www.ofcom.org.uk/consult/condocs/mobile_call_termination/wmvct/wmvct.pdf, and Ofcom, *Mobile Call Termination*, Statement, 27 March 2007, at http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf .

[93] This is particularly the case with respect to regulation that is proposed but which has not yet been put in place. Such regulation needs to be fully implemented and there needs to be compliance with this regulation for a reasonable period of time before it can be assumed that it has dealt with upstream bottlenecks that affect competition in downstream markets.

technologies develop materially, they may have an impact on SMP in the market for wholesale MCT. In particular, if a substantial proportion of subscribers receive calls via VoIP or social networks for which they have to pay, those subscribers' choice of network may be affected by MCT charges.[94] However, we stated in the May 2009 consultation that our preliminary view was that such developments appear unlikely to have a significant effect on the market before 2015.

4.14 Finally, we put forward a working hypothesis that SMP still existed in mobile call termination (which is subject to our full assessment in this consultation). To gather evidence to assist our assessment in this consultation, we asked the following question:

Question 4.1: Do you agree with our view? Or are there other developments, not considered elsewhere in this consultation document, for potentially removing the underlying causes of SMP?

Responses to the May 2009 consultation

4.15 Of the responses to our May 2009 consultation, 15 provided either specific comments on the market power matters that we discussed or raised issues relevant to our market power assessment. Nine respondents explicitly agreed with the view that there were unlikely to be significant market developments over the period of this review that would change the finding of SMP in our 2007 MCT Statement.

4.16 H3G did not express a firm view on the extent of SMP of any individual mobile operators, as it stated that it was still considering the judgment of the Court of Appeal. However, it noted that if our market definition were to relate to an individual mobile network operator's network, then each operator would have a 100 per cent market share. It noted that this would lead to a rebuttable presumption of market power. However, it stressed that it must then be considered whether there is sufficient CBP that the individual network operator in question is constrained to the extent that it does not have SMP. It noted that the vital issue in this context was whether dispute resolution powers should be disregarded for the purposes of assessing CBP.

4.17 T-Mobile argued that the appropriate market definition should be the general market for mobile services, including mobile outgoing and incoming calls and data services. It argued that, given this market definition, the market was highly competitive with no individual operator having SMP in it. However, it noted that if we were to retain a market definition centred on individual networks then it was not aware of any developments, for the period of the review, which would be significant enough to alter our conclusion that each network operator has SMP for MCT to its customers.

4.18 T-Mobile also referred to the judgment in the appeals brought by H3G and BT over our mobile call termination price control decision, noting the finding that CBP was not sufficiently strong on the part of BT to limit MNOs' SMP.[95] T-Mobile suggested that we should apply a common approach in our assessment of SMP to all providers of MCT, irrespective of their size and the technology they use. It argued that the fact

[94] Ofcom, *Wholesale mobile voice call termination: Preliminary consultation on future regulation*, 20 May 2009, p.25 at, http://www.ofcom.org.uk/consult/condocs/mobilecallterm/mobile_call_term.pdf
[95] *T-Mobile (UK) Ltd, British Telecommunications plc, Hutchinson 3G UK Ltd, Cable & Wireless -v- Office of Communications (Termination Rate Disputes)*, [2008] CAT 19, 15/08/2008, at http://www.catribunal.org.uk/files/CofA_Judgment_1083_H36_16.07.09.pdf

that BT (like other fixed/mobile networks) has accepted the MCT proposed by new entrants implies that BT has no CBP with respect to those companies either. T-Mobile also added that, because new providers are likely to have limited volumes of call minutes, it is likely that large companies such as BT have less incentive to object to the rates proposed, even if those rates are not cost-orientated.

4.19 Some respondents, commenting on market developments, highlighted the possible impact that VoIP-based services and the roll-out of additional competing networks could have on market power in future. However, no respondent thought that this would alter the view of SMP in the timeframe considered by the review. Orange argued that the volume of calls made via VoIP is relatively small and unlikely to have a significant impact on the market prior to 2015. It thought that in future it may become possible to terminate VoIP calls to a mobile number without using the radio access network. Orange thought that if this were the case then operators would no longer have SMP, but it did not envisage this being possible during the timeframe of the review. Orange stressed that the radio access network will remain key because it is this which permits mobility.

4.20 H3G expressed the view that new forms of technology may be reducing the extent to which there are absolute barriers to entry (as we found in the last Mobile Call Termination market review). It also thought that new spectrum awards could also be relevant to our consideration of SMP; in particular, the extent to which services based on new spectrum awards act to reduce barriers to entry and increase competition in the retail market.

4.21 C&W argued that in the absence of regulation it is unlikely that termination rates would reduce. Rather, it thought that there was a high probability that MTRs would actually increase, given the importance of this revenue stream for the MCPs. It considered that there was ample evidence that, prior to the regulation of MTRs, when left to their own devices with no regulation, the mobile networks operators over-recovered their costs for call termination (an essentially non-competitive market) in order to compete more aggressively in outbound calls and subscriptions.

4.22 Three respondents expressed strong concerns over the current practice of some mobile operators of so-called ‘see-sawing’ or ‘flip-flopping’ of MTRs. One respondent explained that MTRs often comprise daytime, evening and weekend rates, which are regularly switched by some of the largest four MCPs (i.e. on a month-by-month basis) from a high daytime/low weekend rate to a low daytime/high weekend rate, so as to exploit a current loophole in the charge control mechanism. Colt argued that this practice artificially inflates MTRs to the detriment of customers and competition. It suggested that we should consider an own-initiative Competition Act investigation into this practice.

Ofcom’s response

4.23 Almost all respondents expressing a view on market power did not think that there had been, or would be, developments likely to address the underlying causes of SMP in MCT markets, as set out in the 2007 MCT Statement and earlier regulatory decisions.

4.24 Only T-Mobile expressed the view that the four largest MCPs do not have SMP, based on its view that the market should be defined as “general mobile services” including outbound calls, data services and call termination. In our detailed market assessment in annex 4, we explained why we do not agree with such a broad market definition (e.g. in paragraphs A4.33 to A 4.35 we considered, and rejected, the

arguments concerning cluster markets). It follows, therefore, that we do not accept arguments in relation to the absence of SMP that are predicated upon these alternative market definitions. In any case, T-Mobile accepts that if we adopted a market definition based on calls to each operator's network, then each network operator would have SMP for MCT to its customers.
We set out our substantive assessment of SMP issues in paragraphs 4.29 to 4.92 below. As our proposed market definition comprises

"termination services that are provided by [named mobile communications provider] (MCP) to another communications provider, for the termination of voice calls to UK mobile numbers that MCP has been allocated by Ofcom in the area served by MCP and for which MCP is able to set the termination rate". , our SMP assessment needs to examine the market power of the different classes of mobile providers. As a number of respondents suggested, we have examined:

- the growth of VoIP-based services;
- new entrants that are making use of released guard-band spectrum; and
- communications providers (with mobile number ranges) that do not control licensed spectrum.

4.25 Therefore, our SMP assessment includes not only the four largest MCPs but also the different types of 'new entrant' MCPs such as C&W, MCom and Truphone, which set mobile voice call termination rates by virtue of possessing a mobile number range.

4.26 H3G and T-Mobile also mentioned recent judgments on the extent of CBP that may exist in wholesale MCT markets, and we discuss this in paragraphs 4.78 to 4.92. In examining CBP, as was suggested by T-Mobile, we have also assessed, in paragraphs4.88 to 4.92, the possible scope of CBP of major purchasers of MCT with respect to new entrant MCPs.

4.27 In relation to the 'see-sawing' or 'flip-flopping' of MTRs, we think that this issue is most relevant to our consideration of possible regulatory remedies (if we conclude that a charge control is appropriate). Therefore, our discussion of this issue is considered in part 3 of section 9. However, we do not consider that this pricing behaviour provides evidence of an absence of SMP. The ability of firms to set prices in ways that are potentially against the interests of their customers would, if anything, tend to support a finding of significant market power.

Significant market power assessment

4.28 In the remainder of this section we explain our substantive SMP assessment, in four main areas:

- market shares;
- barriers to entry;
- pricing; and
- countervailing buyer power.

We consider these four areas below:

Market shares

4.29 Market shares are often used as a proxy for market power. Although a high market share alone is not sufficient to establish SMP, it is unlikely that a firm without a substantial share of the relevant market would be in a dominant position. Very large market shares, except in exceptional circumstances, are therefore taken as a clear indicator that SMP is present in the relevant market. The strength of the association can be questioned, however, under certain conditions. For example, there could be the threat of a competitive constraint from new entrants, or potential market power might be constrained by the buyer power of major purchasers of the service in question.

4.30 We consider below the market shares for the four largest MCPs. As our market definition also now covers a number of new entrant mobile providers with different business models and means of providing MCT – as compared to the main providers that have traditionally relied on 2G/3G networks – we then discuss our proposed views on SMP for those providers. In addition, we discuss the issue of ported calls and how this is taken into account in our SMP assessment.

Assessment of market shares of the main MCPs

4.31 For MCT markets provided by the main MCPs, only the terminating MCP can terminate calls to its own subscribers. Therefore, based on our market definition, this means that each MCP has a 100% share of terminating voice calls on its own mobile number range. This applies to calls terminated over each operator's 2G and 3G network and to calls terminated by other means on that mobile number range. This means that each MCP is, in effect, a monopolist in the supply of termination for voice calls to its customers.

Other mobile providers' call termination services

4.32 In the last few years new MCPs have entered the market, with different business models and means of providing call termination services for their mobile number range. Although we cannot rule out the possibility of other types of new entrant mobile providers with control of mobile number ranges, these new entrant MCPs generally fall into two broad categories:

- MCPs with their own mobile networks using licensed spectrum; and
- MCPs offering various solutions using unlicensed spectrum (e.g. Wi-Fi).

4.33 In addition, a number of mobile virtual network operators (MVNOs) (such as Tesco and ASDA) do not have their own networks but offer mobile services to customers through their agreements with one of the main MCPs. We will first consider MVNOs, before looking at other new entrants using mobile number ranges.

MVNOs

4.34 As we proposed in section 3 on market definition, we do not think that MVNOs form part of the relevant wholesale call termination market in cases where they cannot set the MTR. In the case of many MVNOs, although these providers may be allocated a mobile number range, only their host wholesale supplier can ultimately set the termination rates that are captured by our market definition. At the retail level, it remains the case that the calling party's network will have to pay for the termination of calls to the MVNO's subscribers. But the host provider is the wholesale supplier of

MCT, and it is with this provider that the originating network will interconnect (either directly or indirectly) to complete calls to the MVNO's subscribers. Although as part of their contracts with their host provider, MVNOs may be paid a share of revenue from termination receipts, in most cases the market evidence seems to be that they are not able to influence the price at which termination is offered at the wholesale level.

4.35 Our proposed view in relation to MVNOs is, therefore, that they are not relevant to the SMP assessment for wholesale MCT, as the ultimate control of termination rates resides with the wholesale provider of that termination service.

MCPs with access to licensed wireless spectrum

4.36 Providers such as MCom and C&W make use of DECT guard-band spectrum[96] to offer mobile services and terminate calls on their own networks. In the case of MCom, it offers services in specific areas, selling mobile services to customers in inner city communities. C&W offers business customers dedicated mobile networks for their business sites, thereby offering the prospect of reduced costs of (on-site) employee-to-employee mobile calls. C&W offers this mobile service bundled with data and mobile/fixed voice services as a converged fixed-mobile product.

4.37 Providers like C&W or MCom may not have their own network coverage for the whole of the UK. Instead, they typically currently rely on another provider's network to terminate calls to their subscribers where their own network does not offer complete coverage. Nevertheless, taking C&W as an illustrative example for all these operators, calling parties and originating operators have no choice but to use C&W to terminate those calls (even if C&W ultimately uses another provider to terminate some calls that are roaming onto another network). Therefore, each of these providers will also have 100% of the market for MCT to their respective subscribers.

Other new entrants MCPs using mobile number ranges

4.38 The main alternative means by which new entrants (such as Truphone) are currently providing mobile services is by using VoIP-based technologies. These providers typically provide an additional mobile number for a handset that can then be used to terminate calls using a Wi-Fi connection (where this is in range of the user's handset).

4.39 In some cases, it could be that an end-user's handset will also have another mobile number (possibly provided by another MCP). This would mean that a VoIP provider would not necessary have a 100% share of calls terminating on the handset. VoIP type providers will, however, have a 100% share of calls terminating on customers to its mobile number ranges. Given that our proposed market relates to MCT by a given MCP to those mobile numbers for which it can set the termination rate charged, we consider that VoIP providers would therefore have a 100% share of the relevant MCT markets.

[96] On 3 May 2006, Ofcom confirmed the spectrum awards that determine the assignment of wireless telegraphy licences to use the frequency bands 1781.7-1785 MHz paired with 1876.7-1880 MHz (concurrent spectrum access licences). The 12 licences on offer in these 'Guard Band' frequencies was for a total of 6.6-MHz of spectrum, to be used on a low-power basis, and was identified as particularly suited for the provision of private GSM networks in company offices and campuses. *1781 award – Publication under regulation 30 of the Wireless Telegraphy (Licence Award) Regulations 2006 (the "Regulations"),* at http://www.ofcom.org.uk/radiocomms/spectrumawards/completedawards/award_1781/notices/030506.pdf. Other key documents can be found at, http://www.ofcom.org.uk/radiocomms/spectrumawards/completedawards/award_1781/?lang=en

Ported calls

4.40 Mobile number portability allows a customer to switch providers without changing his or her number. At the wholesale level, calls to a number that has transferred from one network to another will attract the current terminating charge of the donor network. In other words, MCPs do not currently control the charge for all the calls they terminate on their own network, because calls to ported numbers are terminated at an MTR set by the 'donor' network. Therefore, as explained in section 3, ported-in calls would be excluded from each MCT market and hence from our SMP assessment for a terminating operator's number range. On the other hand, our proposed market definition means that we have included any 'ported-out' numbers where the operator still has control of that MTR.

4.41 We have considered whether there are any prospective changes to the ported calls regime that might change this In our consultation on porting arrangements we assessed the likely costs and benefits of switching to a solution in which calls to ported numbers are directly routed to the subscription/recipient network.97 This could have changed the wholesale financial settlement scheme for calls to ported mobile numbers, described above. Our provisional analysis identified an overall net benefit of moving to direct routing; but only for mobile originated calls to ported mobile numbers.

4.42 But, in a Statement published today98 we explain that the case for intervention is weaker in the light of further analysis. At this time, we conclude that no regulatory intervention is appropriate and we are not making any changes to the existing regulation of number portability in relation to direct routing. Therefore, in the timeframe of this review, we do not envisage changes to the number porting arrangements. In any case, even if changes to the porting arrangements were to occur in this form, it would not change the nature of our SMP assessment. Each MCP would still control the termination rate and would have a 100% share of relevant calls to subscribers on its mobile number range.

Proposed view on market shares

4.43 In our view, irrespective of the underlying technology used, each mobile communications provider will have 100% market share for the termination of calls to customers on its mobile number range. These 100% market shares would imply, absent other considerations, that each MCP has prima facie SMP in the market for termination of voice calls on its mobile number range.

4.44 We assess below whether there is evidence of other factors that might rebut the presumption of SMP due to these high market shares.

Barriers to entry

Description of competitive entry issue

4.45 In theory, one way in which entry could occur is if MCPs invest in further infrastructure that enables a third-party provider to offer termination on another provider's network. This theoretical possibility exists because, at any time, each mobile phone is generally within the coverage area of three or four different mobile

[97] *Routing calls to ported telephone numbers: Consultation on proposals*, Consultation, 3 August 2009, at http://www.ofcom.org.uk/consult/condocs/gc18_routing/routing.pdf
[98] http://www.ofcom.org.uk/consult/condocs/gc18_mnp/

networks. In these circumstances, it might technically be possible for originating operators to choose which network terminates its calls.

4.46 In practice, however, we do not think this type of entry into termination markets would be likely (and it would require substantial technical changes and co-operation). It is unlikely that providers, each with 100 per cent share of their own termination networks, would have strong incentives to cooperate in this way. Hence, we do not see that currently (or over the medium term) there is any prospect that infrastructure will become available to enable a third-party provider to offer termination on another provider's network.

4.47 An alternative means by which a competitive constraint could exist for calls terminating on a particular provider's network would be via calls to the same handset but using a different mobile number range that terminates using VoIP-based technologies. There are also software applications that allow calls to terminate with the same user, but using client IDs rather than calls made to separate mobile number ranges. For example, services such as Skype enable a voice connection to be made on a mobile handset using VoIP (where the handset is in range of a Wi-Fi network). As we noted in annex 4, this type of VoIP service falls outside our scope of the market definition, as it is made without the use of a mobile number.

4.48 In relation to VoIP-based providers that require users to obtain a separate mobile number for their handset, we propose to classify the termination services provided by these MCPs as belonging to a separate MCT market. However, this does not constitute entry to the mobile number range controlled by another MCP terminating mobile calls over its own network. It remains the case that, irrespective of whether a call is terminated over different technologies, each MCP can still determine the termination rate charged for that mobile number range.

4.49 In principle, if there were more than one way in which an end-user could be contacted on his or her handset, this might impose a competitive constraint. But, as seen in section 3, in order for this to provide a competitive constraint, action would be required on the part of the called party to set up such arrangements in the first place. And as set out in section 3, not enough called parties are likely to behave in that way to make VoIP-based services a significant competitive constraint. It would then also require the calling party to be aware of the number range they are calling, and the alternative VoIP-based service.

4.50 Therefore, although VoIP may have lowered some of the absolute barriers to MCPs holding a mobile number range being able to offer call termination, this would not constitute entry to existing markets. Instead, the VoIP provider would have its own number range; would set its own termination rate; and under our proposed market definition the VoIP-based service on a mobile number range would be covered by a separate wholesale MCT market.

4.51 Hence, this form of entry would not appear to undermine the SMP of existing MCPs as there is a lack of competition between MCPs in supplying wholesale mobile termination on their respective networks or mobile number ranges. Therefore actual entry, or the threat thereof, does not place any material competitive pressure on the MCPs.

Evidence of historic pricing behaviour

Assessment of pricing behaviour and trends

4.52 All of the four largest MCPs have so far set their MTRs up to the maximum target average charges (TACs) permitted by the charge control. While this behaviour does not conclusively support a finding of SMP, neither does it contradict the other economic factors that suggest a finding of SMP for these MCPs.

4.53 Some responses to the May 2009 consultation also noted that past pricing behaviour supported the view that there is SMP in MCT, suggesting that when mobile communications providers were unregulated, they set MTRs independently of competition and customers. Indeed, we have noted in past market reviews that 2G and 3G termination charges appeared to have been set substantially above a reasonable estimate of each MCP's costs for a number of years (despite formal and informal regulation). For example, in our 2007 Statement, we noted that in the case of 3G mobile termination, the underlying 3G charges that were unregulated within the blended charges proposed by three of the four 2G/3G mobile network operators were substantially greater than the 3G charges that H3G levied. Furthermore, we noted that the underlying 3G charges proposed by all 2G/3G MNOs were substantially greater than our estimates of efficient 3G unit costs for these operators.99

4.54 Another pricing issue that three respondents to the May 2009 consultation were concerned about is the regular and large price changes that some of the mobile network operators have made to their MTRs under the current charge control. This behaviour has exploited flexibility in the design of the charge control (as discussed in paragraph 4.22 above). Our view on this conduct is set out in part 3 of section 9.

Pricing behaviour of new entrant MNOs

4.55 For mobile communications providers other than the four largest MCPs, MTRs are currently not subject to direct regulation. The observed pricing behaviour of these providers is therefore relevant to the question of how providers might behave in future, if there is no regulation of MTRs. An important caveat, however, is that these observations of pricing behaviour may not be conclusive in respect of SMP, as (a) the MTRs charged by the four largest MCPs are currently regulated, and (b) the threat of potential regulation may alter the behaviour of market participants. So what we see now is unlikely to be what we would see if all MCPs pricing of MTRs was effectively unregulated.

4.56 For instance, we have recently assessed some new entrants' pricing for call termination, in disputes that T-Mobile referred to us for a determination. In the MCom/T-Mobile and C&W / T-Mobile disputes, MCom and C&W were attempting to charge T-Mobile 7.2 pence per minute (ppm) and 6.418 ppm respectively. We estimated that costs could be between 2.9 to 3.4 ppm for MCom and 2.61 to 4.14 ppm for C&W.

4.57 In our final determinations and statement on those disputes100,101 we considered that an MTR of 4.4 ppm (expressed in 2006/07 prices) would be appropriate, using

[99] Mobile Call Termination Statement, 27 March 2007

[100] For our final determination and statement on the Mapesbury Communciations versus T-Mobile dispute, see:
http://www.ofcom.org.uk/consult/condocs/mapesbury_tmobile/statement/mcom_deter.pdf

benchmark rates that the Competition Commission (CC) had established for the national MNOs as part of its charge control determination.[102] We chose to follow the CC's benchmarks as they provided us with the lowest appropriate regulated MTRs. The comparisons contained in that determination suggested that C&W and M-Com were seeking to levy MTRs well above both our cost estimates and those derived from the CC's cost benchmarks.

4.58 We are not aware of any other new entrant MCPs that face binding competitive constraints such that, in the absence of regulation or threat of regulation, they would seek to set prices at a competitive level. Table 3 below sets out the available MTRs of MCPs listed on BT's carrier price list, other than the four main MCPs.[103]

[101] For our final determination and statement on the C&W versus T-Mobile dispute see: http://www.ofcom.org.uk/bulletins/comp_bull_index/comp_bull_ccases/closed_all/cw_01004/cwdispute.pdf

[102] Competition Commission, Mobile call termination: reference to the CC made by the CAT on 18 March 2008 in the consolidated appeals Hutchison 3G UK Limited v Office of Communications (1083/3/3/07) and British Telecommunications plc v Office of Communications (1085/3/3/07), at http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf

[103] H3G submitted a similar table in its response to our May 2009 consultation.

Table 3 - Mobile termination rates of MCPs

Mobile Communications Provider	MTR (ppp)			Weighted average charge*	Charge relative to average nominal TAC (09/10)**	Effective from
	Daytime	Evening	Weekend			
24 Seven Communications Ltd	10.0	10.0	10.0	10.0	206%	01/06/09
Cable & Wireless plc	7.6	5.4	4.4	6.3	129%	31/07/08
Callax Ltd (Jedillon Grant Ltd)	12.0	8.0	4.0	9.1	188%	
CFL Communications Ltd	12.0	8.0	4.0	9.1	188%	13/11/08
Cheers International Sales Ltd	12.0	8.0	4.0	9.1	188%	19/03/09
Citrus Telecommunications Ltd	12.0	8.0	4.0	9.1	188%	03/04/07
Coralbridge Ltd (Telephony Service Ltd)	10.0	10.0	10.0	10.0	206%	13/05/09
Core Communications Services Ltd	9.6	9.6	1.38 to 9.6	1.38 to 9.6	28% to 198%	01/06/07
Core Telecom Ltd	10.0	10.0	10.0	10.0	206%	17/09/09
D2See Ltd (Orca Digital Ltd)	6.0	6.2	6.4	6.2	127%	17/06/08
FleXtel Ltd	9.1	8.2	2.5	7.4	152%	13/07/06
Invomo Ltd	6.0	6.2	6.4	6.2	127%	17/06/08
IV Response Ltd	7.6	5.4	4.4	6.3	129%	03/05/07
Magrethea Telecommunications Ltd	8.9	6.3	4.3	7.1	147%	23/05/06
Mars Communications Ltd	12.0	8.0	4.0	9.1	188%	17/06/08
Mundio Mobile Ltd	7.2	7.2	7.2	7.2	149%	23/09/08
Opal Telecom Ltd	9.1	4.0	4.0	6.5	134%	01/09/06
Oxygen8 Communications UK Ltd	12.0	8.0	4.0	9.1	188%	05/11/09
QX Telecom Ltd	12.0	8.0	4.0	9.1	188%	11/02/08
Resillent Networks plc	7.6	5.5	4.0	6.2	128%	05/09/08
Sky Telecom Ltd	12.0	8.0	4.0	6.3	129%	01/09/06
Subhan Universal Ltd	7.6	5.4	4.4	9.1	188%	20/02/08
Swiftnet Ltd	6.0 to 10.0	6.2 to 10.0	6.4 to 10.0	6.18 to 10	127% to 206%	04/12/08
Switch Services Ltd	12.0	8.0	4.0	9.1	188%	12/01/09
Teledesign plc (Cable & Wireless UK)	7.6	5.4	4.4	6.3	129%	31/07/08
Telephony Services Ltd	6.0	6.2	6.4	6.2	127%	13/05/09
Telswitch Ltd	10.0	10.0	10.0	10.0	206%	01/05/09
Teleware plc (Jedillon Grant Ltd)	12.0	8.0	4.0	9.1	188%	16/04/08
Titanium Ltd	8.3	8.3	5.1	7.6	157%	26/04/06
Vectone Network Ltd	8.3	8.3	5.1	7.6	157%	11/05/07
Wire9 Telecom plc (Cloud9 Mobile Communications plc)	11.0	8.7	3.1	8.6	177%	01/11/06
Yim Siam Telecom Ltd (Core Telecom Ltd)	10.0 to 12.0	8.0 to 10.0	4.0 to 10.0	9.1 to 10	188% to 206%	23/07/07

Source: *BT's Carrier price List*, at, http://www.btwholesale.com/pages/cmsjsps/service_and_support/service_support_hub/online_pricing_hub/cpl_hub/cpl_pricing_hub/cpl_browsable_sections/cpl_browsable_sectionb_1.jsp

Notes: *Weighted based on aggregate day, evening and weekend termination minutes for the currently charge controlled MCP businesses for the financial year 2008/09. Ranges are provided for Core Communications Services Ltd and Swiftnet Ltd to reflect the range of termination rates applied to, in some cases, different numbers and ranges.

** Forecast Volume-weighted average nominal Target Average Charge for currently charge controlled MCP businesses

4.59 The information in this table suggests that there is relatively wide variation in the MTRs currently set by each unregulated MCP. In addition, some operators have chosen to set relatively high MTRs compared to other providers. In table 3, column 6 for table 3, above we show the variation of the smaller MCPs' charges to the current average charge cap imposed on the five largest MCPs (4.9 ppm in 2009/10). In almost all instances, MCPs' charges are above this average. Such simple price comparisons cannot be conclusive in respect of SMP, but at a general level they do not suggest that sufficient competitive constraints operate in MCT markets since all these providers currently charge MTRs substantially above our estimated costs for a hypothetically efficient provider.

Proposed view on pricing behaviour and trends

4.60 Our provisional finding on pricing is that it is consistent with the other economic factors that point to the presence of SMP. Existing SMP regulation imposes a termination price cap on the four largest MCPs. These MCPs continue to price at a level equivalent to the full amount permitted by those price caps, and while they are complying with the TACs, in some instances they have exceeded the target range. In particular, some of the MCPs have sought to exploit unintended loopholes in the charge control by 'flip-flopping' rates to achieve average rates in excess of the TAC. This does not provide evidence of competitive pressures (and, if anything, supports our proposed view of SMP).

4.61 For new entrant MCPs, we have information from C&W and MCom following our recent dispute determinations. In both of these cases, we took into account a number of relevant cost recovery issues; our final view was that the MTRs they were attempting to charge were significantly above the costs of provision and we determined that the MTRs should be lower. In addition, the weighted average charge identified in table 3 above confirms that, in most cases, currently unregulated MCPs' charges are well above the regulated 2G/3G TAC applicable to the four largest MCPs.

Absence of countervailing buyer power (CBP) and related criteria on costs and barriers to switching

Description of CBP

4.62 CBP is the degree of restraint that a purchaser of products and services is able to place on a seller by imposing an effective counter to any attempt by the seller to set prices for its products or services appreciably above the competitive level. If the buyer is sufficiently important to the seller, then the threat of the purchaser reducing its demand or purchasing from alternative suppliers may be sufficient to constrain any potential market power. The Commission identified this by noting that a market definition of call termination on individual networks:

> *"…does not automatically mean that every network operator has significant market power; this depends on the degree of any countervailing buyer power and other factors potentially limiting that market power."*[104]

4.63 The presence of CBP is therefore an important factor in considering whether any SMP that exists is reduced or negated and, therefore, whether regulation is needed.

4.64 When assessing whether CBP exists, the question should not be viewed as a binary answer (i.e. it is not simply the case of assessing whether or not there is CBP). In order for us to rebut any presumption of SMP arising from very high market shares seen in MCT markets, it is not sufficient for a buyer to have some CBP. The buyer must be able to exert sufficient CBP that a seller is unable to act independently of its competitors, customers and consumers. On this basis, it is necessary to assess where there is any CBP, if so, how much and what effect it has.

[104] *Commission staff working document, Explanatory note*: *Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services,* SEC(2007) 1483/2 , 13 November 2007, p. 25, at http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/article_7/sec_2007_1483_2.pdf

OFT guidelines on the assessment of CBP

4.65 The OFT has set out guidance which states that the strength of buyers and the structure of the buyers' side of the market may constrain the market power of a seller.[105] The OFT guidance notes that the relevant consideration in assessing the impact of buyer power on the ability of the seller to set a price is whether a buyer would have choice, or, in other words, the benefit of a credible 'outside option'.

4.66 In the context of MCT another relevant factor is whether the negotiations between parties account for reciprocity. Telephone network operators generally negotiate termination charges with each other on a bilateral basis. This is because customers on one network would look unfavourably on a situation in which they were able to make calls to customers on another network, but were unable to receive calls from them. This means that where bilateral negotiations take place, that each operator is likely to keep in mind that it not only sells termination to the buyer but is also likely to purchase termination or other telecoms services from that party. The price it sets for its services may therefore influence the deal it can get for the services it purchases (separate non SMP regulations also play a role in this assessment, as discussed below).

Regulation that is relevant to our assessment of CBP

4.67 Our analysis of CBP must assess whether any purchaser of MCT has sufficient weight in negotiations with mobile communications providers to constrain those providers' behaviour. In reality, negotiations between market participants take place against the background of regulation (or the threat of regulation), which tends to influence the outcome of those negotiations. As set out in paragraphs 4.5 to 4.10 above, any analysis of the existence of SMP in a given market must be undertaken within a framework which assumes, for the purpose of the assessment, that the market is not subject to regulation or the threat of regulation arising for instance, from a finding of SMP in the market under consideration. Therefore, before considering the existence of CBP, any assessment of CBP must first establish what regulation we need to disregard for that assessment. From this baseline, it is then possible to consider the available evidence and to determine in the absence of any regulation that needs to be disregarded whether any purchasers of MCT are still likely to be able to exert sufficient CBP.

4.68 We set out our view below of the regulation that we will include in our assessment of CBP.

Control of fixed termination rates and other services

4.69 If fixed originating operators are major purchasers of MCT, one way they can exercise CBP is to threaten to raise the price terminating MCPs pay for those fixed services. Regulatory conditions imposed both on BT and on other FNOs constrain the exercise of SMP in fixed network call termination markets, both by preventing the providers from setting excessive charges in those markets and by preventing them from leveraging that power into other markets (for example through reciprocal bargaining). It is appropriate to take into account such regulation in our CBP assessment, as the regulation relates to a finding of SMP in economic markets that are separate to wholesale MCT markets (i.e. such regulation would exist independently of a finding of SMP in wholesale MCT markets).

[105] OFT415, *Assessment of Market Power: Understanding Competition Law*, December 2004, at http://www.oft.gov.uk/shared_oft/business_leaflets/ca98_guidelines/oft415.pdf

Carrier pre-selection, indirect access and local loop unbundling obligations

4.70 Reflecting our finding that BT has SMP in the market for wholesale fixed call origination, BT is required to provide third parties with network access on regulated terms. These network access obligations take three main forms, referred to as carrier pre-selection (CPS)[106], indirect access (IA)[107] and local loop unbundling (LLU).[108] This wholesale regulation enables other providers to offer retail call services, given the limited prospect that they could enter these markets through self-supply or the purchase of wholesale access from parties other than BT. These regulatory remedies have facilitated active competition in retail voice calls markets, removing the barriers to entry that previously existed.

BT's end-to-end connectivity obligation and our dispute resolution powers

4.71 End-to-end (E2E) connectivity describes the ability of consumers to make calls to other customers or services on the same network or other providers' networks. BT has an obligation to purchase (on reasonable terms) wholesale narrowband (fixed and mobile voice and narrowband data) call termination services from any provider of public electronic communications networks (PECN). This E2E connectivity obligation, which was set in order to achieve E2E connectivity in the UK, currently only applies directly to BT.[109]

4.72 If BT and an MCP are unable to agree the terms and conditions on which the MCT is to be provided, either party may refer the matter to Ofcom, for us to resolve under our statutory dispute resolution powers (section 185(2) of the Act). Therefore, we have *ex post* power to resolve an interconnection dispute between MNOs and other operators which are electronic communications providers.

[106] CPS is a mechanism that allows end-users to select, in advance, alternative Communications Providers to carry their calls without having to dial a prefix or install any special equipment at their premises. The end-user subscribes to the services of one or more CPS operators (CPSOs) and chooses the type of calls (e.g. all national calls) to be carried by them. The end-user may have a direct retail relationship with the CPSO, or may purchase the service via a CPS reseller. The end-user is billed for these calls by the CPSO or CPS reseller.

[107] IA is a service provided by a Communications Provider ("Provider A") to an end-user that means when an end-user selects an IA Access Code when making a call that call is routed and billed through Provider A, even though the call originated from the network of another Communications Provider ("Provider B").

[108] LLU is the process where the incumbent operators (BT and Kingston) makes its local access network (the cables that run from customers premises to the telephone exchange) available to other Communications providers. These Communications Providers are able to upgrade individual lines using DSL technology to offer a variety of services, including high speed broadband. In the case of Full LLU (MPF), the Communications Provider is able to provide both voice and broadband service using LLU. This contrasts with Shared LLU (SMPF), which only allows a Communications Provider to provide broadband using LLU.

[109] When we imposed this condition on BT, we did not consider that it was proportionate to impose a similar obligation on other providers of Public Electronic Communications Services. However, we considered that all providers should provide E2E connectivity and therefore if we became aware that this was not being provided we would consider whether such an obligation were appropriate and proportionate in that case.

The recent Court of Appeal's judgment[110]

4.73 To determine whether we should take into account elements of the E2E connectivity obligation, or our dispute resolution powers, in assessing SMP, we refer to the recent reasoning of the Court of Appeal (CoA) in its judgment on this issue. The judgment also endorsed the application by Ofcom of the "modified Greenfield" approach in that case. Under this approach Ofcom does take into account for SMP assessment regulatory obligations that are unrelated to the SMP assessment. The CoA judgment provides very clear guidance that Ofcom's *ex post* dispute resolution powers should be disregarded when assessing SMP. In line with that judgment, in this case Ofcom has similarly not taken account of ex post dispute resolution powers but we have taken

4.74 into account the following:

- regulation of BT's and FNOs fixed termination rates and other services;
- BT's CPS, IA and LLU obligations; and
- likely buyer behaviour in the absence of our ex-post powers (in particular, our dispute resolution power).

Assessment of CBP

4.75 The precise CBP that each FNO or MCP will have when negotiating with individual MCPs will vary to some extent, so a detailed analysis of every single bilateral negotiation (involving up to 60 MCPs and more than 100 FNOs) would theoretically be needed. This would be an extremely difficult exercise to carry out in practice. The difficulty of undertaking this task is widely recognised – for example, recent economic papers in this area model the results of negotiating among a limited number of FNOs and MCPs, with some restrictive assumptions to make the modelling task manageable.[111] In particular, for the CBP assessment in this MCT market review, we would need to model the negotiations of a subset of 50 MCPs and more than 100 FNOs, taking into account various assumptions about the existing (and separate) regulations, and the potential spill-over effects that individual agreements would have on other bilateral agreements. In practice, the number of negotiations would be more limited as small operators, in particular, would be likely to have only a limited number of commercial interconnection agreements in place because of the use of transit operators.

4.76 In the remainder of this sub-section we explain why we consider that FNOs and most MCPs are unlikely to have sufficient CBP to negate the market power of individual MCPs, which are monopoly suppliers of wholesale MCT to them. In undertaking our CBP assessment, we have taken into account the CoA judgment, which has set a high evidentiary hurdle for any finding of sufficient CBP to constrain any SMP that a terminating operator might have. In particular, the CoA placed emphasis on the strong presumption of SMP for terminating operators, with the burden being upon the

[110] *Hutchison 3G UK Limited v Office of Communications (Mobile Call Termination)*, Court of Appeal, Case No. C1 2008/1932, EWCA Civ 683, 16 July 2009, at http://www.catribunal.org.uk/files/CofA_Judgment_1083_H36_16.07.09.pdf

[111] Armstrong, M. and Wright,J. (2009), 'Mobile Call Termination', *Economic Journal*, Royal Society, Vol. 119(538), pp. F270-F307; and Jullien, B., Rey, P. and Sand-Zantman, W. (2009), 'Mobile Call Termination Revisited', *IDEI Working Papers 551*, Institut d'Économie Industrielle (IDEI), Toulouse.

terminating operator - should they wish to rebut the presumption – to provide "clear and convincing evidence" of there being sufficient CBP.[112]

Role played by BT

4.77 Taking the UK as a whole, BT is the largest purchaser of mobile call termination, and purchases call termination from the providers in every one of the proposed markets (its E2E connectivity obligation means that it is interconnected, either directly or indirectly, to each MCP). As discussed in the Competition Appeals Tribunal's (CAT) judgment, it is logical to take BT as the starting point for an assessment of CBP:

> "*the fact that BT is by far the largest purchaser of mobile call termination means that if it were found not to have a level of CBP sufficient to negate any prima facie finding of SMP, it could necessarily be assumed that neither would any other purchaser of mobile termination."*[113]

4.78 The importance of BT for the wholesale MCT market relates not only to its share of residential and business fixed voice customers, but also to its role as the largest transit provider. At Q1 2009, BT held a 62% share of the estimated 23.5 million residential exchange lines and a 58% share of the estimated 9.5 million business exchange lines.114 When combined with the transit services that it offers to other originating operators, BT is the largest purchaser of MCT, with other purchasers accounting for significantly lower shares.

4.79 Information gathered as part of our 2009 review of the wholesale fixed narrowband markets115 suggests that BT accounts for almost one half of the total transit volumes (including self-supply).116 And of these transit volumes, around two-thirds of this traffic was estimated to be terminated on mobile networks. The next largest transit provider, C&W, was estimated to account for around a quarter of the transit volumes that we were able to measure.

4.80 In offering transit services, BT provides other originating operators with the option to either:

- directly interconnect with a terminating MCP and negotiate an interconnection charge directly (and bear any costs associated with establishing direct interconnection)[117], or

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[112] See paragraph 101 of the CoA's judgement, http://www.catribunal.org.uk/files/CofA_Judgment_1083_H36_16.07.09.pdf

[113] *Hutchison 3G UK Limited v Office of Communications (Mobile Call Termination)*, Court of Appeal, Case No. C1 2008/1932, EWCA Civ 683, 16 July 2009, p. 22 and p. 48, at http://www.catribunal.org.uk/files/CofA_Judgment_1083_H36_16.07.09.pdf

[114] See tables 7 and 12 of Ofcom's *Telecommunications Market Data Tables,* at http://www.ofcom.org.uk/research/cm/tables/q1_2009/q1_2009.pdf

[115] http://www.ofcom.org.uk/consult/condocs/review_wholesale/fnwm.pdf

[116] The information we gathered suggested BT's overall share was 43% of the transit market examined. This is only an estimate as it is based on 2007/08 volume data collected from five major narrowband communication providers (i.e. BT, C&W, CPW, Virgin and Thus) based on Inter-Tandem Conveyance ("ITC"), Inter-Tandem Transit ("ITT") volumes only. Following consultation, in response to evidence provided by stakeholders, we amended our market definition to include Single Transit ("ST") volumes. However, due to incomplete communication provider data on ST volumes we were not able to estimate accurately BT's overall market share.

[117] MCPs can also negotiate separate commercial interconnect agreements with other MCPs even if they have no physical (direct) interconnection in place. In this case for instance rebates are offered to the originating MCP to repay the difference between the MTR agreed with the transit operator and the

- indirectly interconnect, transiting its traffic via BT (for a fee) and effectively allowing BT to negotiate on its behalf alongside all other originating operators which transit traffic via BT.

4.81 This provides originating MCPs with a commercial trade-off between these two interconnection options. As an originating operator (other than BT) always has, as a backstop, the MTR[118] that BT has already agreed with each MNO, this rate (plus the difference between BT's transit charge and the direct interconnection costs that it avoids) should act as a ceiling to the MTR that other originating operators would be willing to pay. This is because other operators could interconnect with BT to avoid higher termination rates.

4.82 Also, the MTR that BT agrees with each MCP should provide a floor on termination rates in individual bilateral negotiations. If an originating operator sought a lower termination rate than the terminating operator had agreed with BT, then the MCP should in principle have limited incentives to refuse to sign such interconnection agreement.119 This may then force the originating operator to transit traffic via BT and, in principle, would ensure that the originating operator pays the same termination charge as BT for the traffic it originates.

4.83 This highlights the importance of BT in terms of the setting of MTRs. BT should be seen as an important outlet for all sellers in terms of the volume of MCT services it purchases. Also, the MTR that an MCP agrees with BT might have a wider impact on other originating operators' purchasing decisions.

4.84 Given the availability of transit services, however, it is less clear whether other purchasers are also important outlets. At least in terms of the subscribers connected to their networks, the four largest MCPs are likely to have some importance. C&W is also likely to play a significant role as the second most important transit operator. We discuss below whether there is the potential for other major purchasers of MCT to exert CBP (sufficient to constrain any SMP that a terminating operator might have).

CBP in the presence of two-way access negotiations

4.85 Telephone networks generally negotiate termination charges with each other on a bilateral basis, reflecting the value to each of having interconnected networks. When considering the impact such reciprocity may have on CBP in this market, it is important to note that the termination charges of BT and other FNOs are constrained by regulation. As discussed in paragraph 4.70 – 4.71 above:

- For BT and other fixed operators, the charges they levy for fixed termination are fixed by regulation, so they are constrained in using these rates as a bargaining chip (i.e. by threatening to raise the rate they levy on MCPs for wholesale fixed termination). BT is also under an obligation to connect with other operators (and C&W will have a commercial incentive to agree similar

commercially agreed MTR between the MCPs (if lower), or alternatively a different transit operator is used to allow the MCPs to apply the lower MTR separately agreed.

[118] We refer to an MTR even if in practice the agreement might be on a set of MTRs for different times of day and weekdays/weekends.

[119] In practice this is more complex as some MCPs have refused to open the number ranges of smaller MCPs to try to force them to accept lower MTRs than the MTRs the new entrant MCPs had already agreed with BT or a different transit operator (such as C&W). The extent to which this tactic can be regarded as legitimate countervailing buyer power for the larger MCPs is unclear as the parties' expectation of Ofcom's potential intervention in these cases (in terms of our current and future view of their end-to-end connectivity obligations) plays a role in the discussions.

rates to BT's to compete for the transit business), so if MTRs are unregulated, MCPs are likely to set MTRs to BT (and C&W) that are too high.

- Many of BT's wholesale communication services, other than fixed call termination, (e.g. many MCPs rely on BT to provide backhaul network components from radio base stations) are also regulated. Therefore, regulation of BT in a number of other markets is likely to constrain its ability to adjust the terms on which it sells those services in the course of negotiation of the mobile call termination rate with the MCP.

4.86 As discussed above we observe that new entrant MCPs routinely achieve high MTRs with BT and C&W. We believe there are different commercial and regulatory reasons why we currently observe this outcome: (a) BT is under an end-to-end connectivity obligation that means that from a regulatory point of view BT all else equal might find it more difficult than the national MCPs to refuse to open number ranges to force lower MTRs from new entrant MCPs, (b) BT and C&W as transit operators have an incentive to connect with new providers to win transit business (and sometimes additional outsourcing business), and (c) at the retail level currently FNOs usually price calls to mobiles on the basis of a "cost-plus" model so they are less exposed to high MTRs than competing MCPs that tend to include all calls to mobile numbers within bundles.120 We believe that this suggests that it is unlikely that BT or C&W would have sufficient CBP vis-a-vis MCPs.

4.87 Once new entrant MCPs have successfully established direct interconnection with BT (or C&W) and set relatively high MTRs, it is not clear how much CBP large MCPs have. The evidence is that in most cases these large MCPs simply pay the high MTRs; establishing direct interconnection with these operators with limited traffic would not be cost effective, so they simply transit their traffic through the transit provider(s) and pay the high MTRs. On the other hand, in some cases these large MCPs attempt to negotiate lower MTRs by, for instance, threatening not to open the number ranges of the new entrant MCPs to their subscribers as discussed above (or threatening to place the retail calls to these numbers from their subscribers outside of their mobile bundles).

4.88 Even if we were to accept that there is evidence that some large MCPs have CBP vis-a-vis new entrant MCPs (and as discussed above this is a complex assessment as Ofcom's current and future interpretation of the MCPs' end-to-end connectivity obligations plays an important role in the analysis), there is no mechanism to transmit the lower MTRs that the national MCPs could potentially achieve to the FNOs and the smaller MCPs. The lower rates would be achieved in bilateral negotiations, and there is no mechanism allowing these lower rates for the larger MCPs to 'spill over' to lower the higher MTRs charged to the other providers.

4.89 Consequently, we conclude that at most some national MCPs would have CBP vis-a-vis new entrant MCPs, but this would not be sufficient to force the MTRs charged by new entrant MCPs to the competitive level for many other providers (including BT, C&W and possibly a number of smaller MCPs). This means that new entrant MCPs have SMP in the supply of MCT.

[120] More specifically, the current competitive equilibrium in the retail market for mobile calls is such that MCPs offer all-inclusive bundles of calls to mobiles to their subscribers so if a new entrant sets a high MTR these operators need to decide between either changing their business model and having out-of-bundle calls to mobiles or taking on a cost if the MTRs they pay to the new entrant are higher than their regulated MTRs. FNOs do not face the same commercial dilemma as most bundles they currently offer do not include calls to mobiles, so it is easier for the FNOs to set retail prices for calls to specific mobile number ranges that are above the interconnection costs they face.

Summary of our proposed SMP assessment

4.90 For the proposed market defined in section 3, we find that each MCP has SMP in the market for terminating voice calls over the mobile number range(s) it controls. This is because:

- it is only the terminating MCP that can terminate calls to mobile numbers held by its subscribers, and each MCP therefore has 100 per cent market share in the market for wholesale termination that it supplies to other operators;
- we do not foresee any changes to the current CPP arrangements or the introduction of new or developing technologies that will allow another provider to compete effectively to offer termination on another mobile network, other than the MCP in question;
- this combination of current and enduring maximum market shares and absolute barriers to entry provides a strong presumption of market power;
- Ofcom does not believe that most fixed and mobile originating operators are able to exercise sufficient CBP to overcome the terminating MCP's market position (i.e. to prevent terminating MNOs charging appreciably above the competitive level for MCT); and
- the pricing evidence also does not undermine our proposed conclusion and in fact is supportive of our proposed finding of SMP.

4.91 The list of those MCPs, which includes the four largest MCPs, appears in annex 7 to Schedule 1.

Question 4.2: Do stakeholders have any comments on the analysis set out in this section?

Question 4.3: Are there any other providers with SMP that we have not identified?

Question 4.4: Do stakeholders agree with our proposed SMP assessment for the period until 2014/15?

Section 5

Issues arising from a finding of SMP

Introduction

5.1 As discussed in sections 3 and 4, we have provisionally concluded that each mobile communications provider that has been allocated a mobile number range has SMP in supplying MCT to that number range. In this section we discuss why we believe consumers' interests would be harmed, if we did not impose regulation to address the lack of effective competition in those markets. We first highlight the harm identified in our May 2009 consultation and stakeholder responses. We then discuss any points raised and our proposed views on likely harm arising from unregulated SMP.

May 2009 consultation

5.2 In the May 2009 consultation, we identified a number of problems likely to arise as a result of SMP. With the absence of regulation, or without the threat of regulation, we believe SMP providers would have the ability and incentive to set excessive charges for MCT. We considered that excessive charges could result in harm to consumers, falling into three broad categories:

- consumers could be harmed by prices that encourage inefficient behaviour;
- consumers could be harmed by prices that undermine competition; and
- there could be distributional effects (creating winners and losers) that raise concerns about particular groups of consumers.

5.3 In the May 2009 consultation, we explained that we believed that regulation of MCT is likely to be appropriate (section 7 discusses alternative options for regulation). We did not specify a method that we proposed to adopt in that consultation.

Responses

5.4 Overall, most respondents considered that harm would arise in the absence of regulation on SMP providers. Many responses agreed that possible harm fell into one or more of the Ofcom identified areas; namely, distributional impacts, competition concerns, and economic inefficiencies.

Views on distributional impacts

5.5 In respect of distributional impacts, BT and others noted that higher MTRs harm those who call wholly or mainly from a fixed network. An individual respondent noted that in turn this would suggest that higher MTRs would discriminate against certain groups, such as the elderly, who predominantly use landline phones to make calls to mobiles.

Views on competition concerns

5.6 In relation to competition concerns, H3G noted that relatively high MTRs create a strategic incentive for incumbent operators to use retail price discrimination between on- and off-net calls to create a competitive advantage which smaller, later entrants

are unable to replicate (or, at a minimum, find it costly to replicate; as discussed below).

5.7 In its response FCS noted the disadvantages of high MTRs to new entrants. It argued that in order to get market share in a saturated market, entrants have to be able to offer very competitive pricing - not just for on-net calls (as they have yet to establish a big enough community), but also off-net calls.

5.8 This means (in H3G's submission) that given the very competitive pricing offered for calls, new entrants' initial customer base will have a higher propensity to make outbound off-net calls to other mobiles, than to receive calls from those networks. Smaller, later entrant operators will have a traffic imbalance between incoming and outgoing calls with the incumbent operators (reflecting the strategic incentives of larger incumbents, their smaller size in the market and barriers to growth), which means that the higher the MTRs, the greater the financial outflow from small to large operators. MTRs can therefore be seen as a barrier to entry and growth in mobile markets, creating competitive distortions.

5.9 H3G also noted that the significant revenues to incumbents from high MTRs creates an incentive to block innovative services based on Internet Protocol (IP) communications services, which may cannibalise that revenue stream. Relatively high MTRs can therefore act as a hindrance to innovation. H3G further argued that substantial differences between mobile and fixed termination rate levels create a regulatory distinction (which is increasingly not a distinction that can be justified on the basis of technology) between the two types of network, which hinders the development of fixed/mobile convergence (FMC).

5.10 Another individual argued that unregulated MTRs would stifle potential tariff innovation. This respondent considered that this would lead to less choice and the lack of tariff innovations, such as 'all you can eat' tariffs at set monthly fees. BT noted in its response that its retail arm wants to offer all-inclusive packages, where customers pay a set price and have the peace of mind that all calls will be covered, including those to mobiles.

Views on economic inefficiencies

5.11 A number of other concerns were raised on inefficient economic signals associated with high MTRs. BT highlighted that excessive termination rates mean that the prices of calls to mobile phones, at least from fixed lines, will remain a long way above the incremental costs of handling these calls. It argued that for calls from fixed lines, consumers and businesses face misleading price signals, as they would be paying prices far above cost. The result of this would be that some fixed-line customers would be deterred from calling mobiles, although they would have been prepared to pay the genuine additional (lower) costs. BT argued that this would lead to inefficient consumption patterns, as it could give rise to missed contacts and losses of the benefits (potentially to both parties) that would have occurred had the call taken place.

5.12 BT noted that whereas mobile termination is deemed to be of higher cost than fixed termination, it must also be the case that origination costs more on mobile networks than it does on fixed networks. It observed that there are lower retail prices for mobile-to-mobile calls compared to fixed-to-mobile calls. BT argued that there is a competitive distortion at play: that is, that excessive profit on termination is being used to cross-subsidise the mobile-to-mobile retail price. Fixed-only customers are clearly disadvantaged by excessive termination rates for calling mobiles. Customers

who have both fixed lines and mobiles may face both misleading absolute prices and misleading relative prices and may therefore make fewer calls, or make some of them from the network with higher marginal underlying costs.

5.13 H3G argued that higher wholesale rates increase retail call prices, and simple economic theory shows that setting such rates above some measure of marginal cost creates allocative inefficiencies. Lower MTRs, which are better aligned with underlying cost structures and hence some measure of marginal cost, will therefore promote static efficiency, providing an immediate benefit to consumers generally. H3G argued that an allocative efficient structure of prices is therefore one which tends to recover fixed common costs through fixed retail charges and variable pence per minute call termination wholesale rates, which are more closely aligned with some form of marginal cost measure.

5.14 Colt argued that unregulated MCT gives rise to incentives for inefficient arbitrage and work-around market 'solutions' (which often generate their own inefficiencies and unwelcome side effects), such as:

- H3G's 'We Pay' offer, in which H3G's pre-pay customers were credited with 5ppm when receiving inbound calls. This credit was funded by H3G's (then unregulated) MCT receipts.
- The fact that GSM Gateway (or SIM box) operators are able to terminate calls more cheaply using airtime than is possible through the interconnect routes, where the MCT rates apply

Views on a lack of (or reduced) harm if there were no regulation

5.15 In relation to the five larger MCPs, four of the respondents did not explicitly disagree with all of the proposed detriments identified in the May 2009 consultation. Instead, they tended to point to risks of significant (and, in their view, arguably greater) detriments to investment in services and customers from setting termination rates that are too low.

5.16 Only T-Mobile was explicit in arguing that a lack of *ex ante* regulation would not lead to sustained excessive mobile termination rates. It considered that the most likely scenario for the operators that are currently regulated is that there would be disputes between communications providers leading to references to Ofcom under its dispute resolution powers. T-Mobile thought that *ex post* regulation would need to be employed, which in theory ought to lead to similar rates or regulation being imposed as would have been imposed under *ex ante* regulation, albeit within the limitations of the dispute resolution procedure.

5.17 Orange highlighted that harm arising from excessive termination rates would be likely to be smaller in the UK, due to the relatively high levels of competition in the UK mobile sector. It noted that if MTRs are set above cost, the operators may either retain this as profit, and consequently set retail prices higher than the competitive level, or, in a highly competitive market, would compete away this profit by lowering prices on the retail market (i.e. what is termed the 'waterbed effect'). Orange argued that the evidence on the waterbed effect is inconclusive, but the balance of evidence in the study by Valetti and Genakos is in favour of a waterbed effect. Orange pointed to Ofcom's recent strategic review of mobile markets, which suggested that the UK has the most competitive mobile market in the world.[121] It therefore argued that the waterbed effect would be greatest in the UK. In this context, it suggests that if termination rates are set

[121] http://www.ofcom.org.uk/consult/condocs/msa/statement/

above cost, the risk of harm to consumers is the lowest because any profit made is then competed away through lower prices.

5.18 O2 highlighted its concerns that Ofcom needs to be clear about what it is seeking to achieve by regulating termination rates. It highlighted that the justification for regulated MTRs should not be based on trying to fix some perceived problem in fixed and mobile retail markets, i.e. the concern that operators have insufficient pricing flexibility, because high MTRs act as a 'floor' for the prices of retail calls to mobiles, preventing innovation to create larger and more comprehensive call bundles. O2 argued that the traditional role of a regulator is to set charge controls to mimic competitive prices, where competition is not effective. Seeking to reduce MTRs as far as possible, to allow greater flexibility at the retail level, would lead to an inefficient set of prices and outputs, which would not be in consumers' interests. Furthermore, it argued that the evidence suggests that there is no problem in mobile retail markets, and, to the extent that there is a problem in fixed markets, it would not be resolved by lower mobile termination rates.

Ofcom's response

5.19 The majority of stakeholders agreed that, without regulation, consumers would be harmed as a result of inefficient outcomes, either in the form of higher prices and/or distortions to markets that reduce overall economic benefits indirectly (e.g. by discouraging efficient investments). We consider that these responses (particularly from the national MCPs) do not change our view in the preliminary consultation that SMP would result in significant harm to consumers if MTRs were not regulated.

Excessive prices overall

Evidence points to excess prices without regulation

5.20 We believe that, without regulation, MCPs would have both the incentive and the ability to set excessive prices for MCT. Some academic literature has considered the issue of what MCT charges would prevail in the absence of regulation.[122] As was noted in the preliminary consultation, while some papers suggest (especially for mobile to mobile calls) that MCT could be set at –or even below – (marginal) costs, they are generally inconclusive and heavily dependent on a various set of (sometimes different) assumptions.[123]

5.21 As was noted in paragraphs 5.5 to 5.13 of the May 2009 consultation, before regulation of MTRs, MCT charges were set substantially above costs. For example, in December 1998, the CC concluded that:

"The charges introduced by Cellnet[124] *and Vodafone in August 1998 are 22 per cent above the current benchmark*[125] *and 30 per cent above the benchmark for 1999/2000."*[126]

[122] The results indeed depend on whether MCPs set their MCT charges cooperatively or unilaterally, the nature of retail competition, and the presence or absence of call externalities. For an overview of this literature, see Armstrong (2002), "The Theory of Access Pricing and Interconnection", in *Handbook of Telecommunications Economics*, eds. Cave, M., Majumdar, S. and Vogelsang, I., North-Holland, and Armstrong and Wright (2008), "Mobile Call Termination", *Economic Journal*, available at http://else.econ.ucl.ac.uk/papers/uploaded/255.pdf. Armstrong and Wright explain why arbitrage would force MCPs to set high MTRs for both FNOs and other MCPs.
[123] See also the discussion on the "Deregulation" option in section 6.
[124] Now O2

5.22 Indeed, the analysis of unregulated operators' MTRs in section 4 suggests that MCPs are setting those rates above the benchmark regulated rates of the five main MCPs. In relation to the main MCPs, it is also relevant to consider the likely counterfactual scenario implied by the time and money that MCPs have devoted, over many years, to regulatory and legal proceedings resisting regulators' efforts to reduce MTRs.

5.23 We therefore consider that without regulation, MCPs would set excessive MTRs.

Impact of excess pricing on welfare

5.24 If MCPs set excessive MTRs, they may be able to earn excess profits for that service. But is this a problem if, in a competitive market, those profits are competed away – that is, handed back to consumers in the form of incentives to buy mobile services, such as lower call prices or handset subsidies? This competing away of excess profits is known as the 'waterbed' effect. [127]

5.25 To the extent that the waterbed effect is not complete (i.e. a £1 profit in MCT will result in less than £1 being passed on to consumers in the form of retail price reductions), excessive profits on termination will not be fully competed away. As MCT is part of the cost base for an end-to-end retail call to a mobile, consumers, on average, will pay more.

5.26 The national MCPs have argued that if the waterbed effect is complete, we should be relatively sanguine about high mobile termination charges.[128] This is because excess profits arising as a result of excessive termination charges will be returned to mobile consumers in the form of lower retail prices for mobile services.

5.27 One of the conditions likely to be necessary for *all* excess profits earned from MCT to be competed away, would be that the mobile retail (access and origination) market in which MCPs operate would need to be effectively competitive. In our Mobile Sector Assessment, we thought that the evidence pointed to mobile retail markets being competitive.[129] However, even with competitive downstream markets it is not necessarily the case that the waterbed effect will be complete.

5.28 Turning to other empirical evidence about the magnitude of the waterbed effect, one possible way to assess the extent of the waterbed effect might be to observe excess profitability. However, as we have previously highlighted, it is difficult to rely on

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[125] This benchmark is the "public interest benchmark of efficiently incurred costs of an operator assuming it had 25 per cent of the current and anticipated market"

[126] Cellnet and Vodafone**,** Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Cellnet and Vodafone for terminating calls from fixed-line networks, December 1998. Part 1, Summary and conclusions, paragraph 1.11 (see: http://www.competition-commission.org.uk/rep_pub/reports/1999/fulltext/421c1.pdf)

[127] The waterbed effect is where a change in one set of prices leads to changes in prices in a different part of the market. For example, many of the respondents both to the MCT Consultation in May 2009, and previously, have highlighted how a reduction in MTRs may induce operators to raise retail prices. There is a wide body of literature on the waterbed effect in relation to telecommunications, such as Schiff, A (2008) "The 'waterbed effect and price regulation", Review of Network Economics, Vol. 7, Issue 3, pp.392-414 and Genakos, C. and Valletti, T. (2009) "Testing the 'waterbed effect in mobile telephony", Journal of the European Economic Association (forthcoming), available at http://www.sel.cam.ac.uk/Genakos/Genakos%20Valletti-Testing%20Waterbed%20Effect.pdf

[128] http://www.ofcom.org.uk/consult/condocs/mobilecallterm/responses/

[129] http://www.ofcom.org.uk/consult/condocs/msa/statement/

observations of MCP profitability to inform our views of the waterbed effect[130]. Our view was, given these difficulties, that profitability evidence would not confirm whether or not the waterbed effect is complete.

5.29 There are only a handful of external academic papers on this subject, and these have reached mixed conclusions. Genakos and Valletti looked at whether a reduction in MCT charges by regulation led to an increase in retail prices, and found that the waterbed effect is large, but not complete.[131] Andersson and Hansen (2007)[132] looked at the effect of mobile-to-mobile termination charges on profits, and concluded that they could not reject the hypothesis that the waterbed effect is 100% complete.[133]

5.30 In conclusion, while the evidence is not conclusive, we think that the waterbed effect is unlikely to be 100% complete. Given the inconclusive nature of the evidence, however, we do not rely on excessive prices overall when assessing the harm flowing from unregulated SMP in MCT. As explained in the following paragraphs, even if the waterbed effect were fully effective, excessive termination charges may give rise to other problems.

Economic inefficiencies

Inefficient structure of prices

5.31 Even if excess profits on MCT are competed away, the resulting structure of prices in retail and wholesale markets may be inefficient, harming consumers' interests. For example, the price of calls to mobiles from, say, fixed lines would be relatively high, and other charges for mobile services (for example, monthly access fees) relatively low. This inefficient structure of prices would lead to over-consumption of mobile retail services and under-consumption of other retail services that use MCT, such as fixed-to-mobile calls.

5.32 As noted in responses, if MCPs set excessive prices for MCT while FNOs are only able to charge regulated (cost-orientated) prices for fixed termination, this would result in a transfer of funds from fixed to mobile operators. This transfer is not an efficient allocation of resources (and, in a situation where fixed and mobile operators may begin to compete with each other, could also result in a competitive distortion – discussed further below).

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[130] Ofcom's high level analysis of MCPs' profitability, in the 2007 review, illustrated that estimating profitability robustly is complicated and sensitive to assumptions made about the relevant capital base and the time horizon over which profitability is assessed. Under different assumptions Ofcom has found that MCPs could be considered to be earning returns variously in excess of, and below, their cost of capital.

[131] Genakos, C. and Valletti, T. (2009) "Testing the 'waterbed effect in mobile telephony", Journal of the European Economic Association (forthcoming), available at http://www.sel.cam.ac.uk/Genakos/Genakos%20Valletti-Testing%20Waterbed%20Effect.pdf. It provide econometric evidence that the introduction of regulation resulted in a ten percent waterbed effect on average. However, although the waterbed effect is high, the analysis also provides evidence that it is not full: accounting measures of profits are positively related to MTR, thus mobile firms suffer from cuts in termination rates. Additionally the empirical analysis also reveals that the waterbed effect is stronger the more intense competition is in markets with high levels of market penetration and high termination rates.

[132] Andersson, K. and Hansen, B., (2007), "Network Competition: Empirical Evidence on Mobile Termination Charges and Profitability", mimeo (version of 15 December 2007).

[133] Note however, that even were this to be the case, we may still be concerned about the level of fixed-to-mobile charges.

5.33 Even with mobile-to-mobile calls, excessive termination charges could create distortions. MTRs might create a floor on the price of mobile-to-mobile calls between networks (off-net calls). Therefore, excessive termination charges might lead to much higher charges for off-net calls than for on-net calls, and therefore a distortion in the consumer choices between the two call types (with potential flow-on effects for competition).

Distortion of consumer choice

5.34 Excessive termination charges may also fuel higher retail prices for fixed-to-mobile and mobile-to-mobile (off-net) calls.[134] However, mobile-to-mobile (on-net) calls incur no explicit termination charge, and mobile-to-fixed calls incur FTRs, which are regulated at cost. Moreover, excessive MCT charges enable reductions in prices of mobile retail services.

5.35 Therefore, we consider that consumers' choices are likely to be distorted when choosing whether to make mobile or fixed calls and, potentially, in buying mobile and fixed access, as the relative prices do not reflect the underlying costs. Even if this effect is relatively modest, the size and scope of the UK mobile market means that the aggregate impact on consumers will be sufficient that regulation is appropriate.

Distributional impacts

5.36 Under the waterbed effect, excessive prices result in transfers between different groups of consumers. This may raise equity concerns.

5.37 In the 2007 MCT Statement we considered this issue in relation to the differential impact of excessive termination charges on each of:

- fixed-only consumers (i.e. those not personally using mobile phones and living in households with fixed line phones);
- mobile-only consumers (i.e. those personally using a mobile and living in a household without a fixed line phone); and
- mobile-and-fixed consumers.[135]

5.38 If MTRs are high, consumers face two effects: higher prices for calling a mobile, offset by lower prices for mobile services. Mobile-only and mobile-and-fixed consumers may benefit from lower mobile prices, but only to the extent that those are passed through to retail prices – if lower prices are targeted to particular mobile services, not all mobile-using consumers may benefit.[136] Any benefit they receive may also be offset by the higher cost of calling a mobile phone from their own mobile handset and, if they have one, their fixed-line phone. Therefore, the impact of high MTRs, possibly offset by lower retail prices (e.g. subsidised subscription charges or handsets), would unfairly disadvantage customers who make a lot of off-net calls to mobiles in favour of those that do not. There will also be transfers within the group of

[134] The question of whether this occurs relates to the 'pass-through' of high MTRs to the retail charges for calls to mobiles. The extent of pass-through is contested, with some MCPs arguing that fixed-to-mobile calls have become more expensive, not cheaper, as MTRs have fallen.
[135] See section 7 and annex 19 of the 2007 MCT Statement.
[136] For example, any retail price reductions might be targeted on subsidies aimed at retaining the most price-sensitive retail customers.

mobile users, some of whom may benefit or lose disproportionately from those subsidised services and handsets.[137]

5.39 The biggest losers if MTRs are high are fixed-only customers. As MTRs are a major component of the price of calls to mobiles, fixed callers to mobiles may face excessive charges while mobile subscribers may benefit through lower prices for mobile services. As noted by an individual respondent, this may create equality impacts, because certain classes of disadvantaged consumer groups (such as the elderly) are likely to be fixed-only households or otherwise use proportionally more fixed network services. We discuss distributional impacts of different MTR levels further in annex 13.

5.40 As stated above, the precise impact on mobile and fixed consumers depends on their relative consumption profile within this group. Distributional impacts are discussed further in section 9 and annex 13.

Competition concerns

5.41 The power to set high MTRs can also generate profits used to fund competitive activity in retail mobile markets. If all MCPs were of similar size in terms of revenues or subscribers, they might have similar levels of market power in the retail mobile market, so distortion of existing competition in retail *mobile* markets would be limited. However, with the entry of new providers associated with the liberalisation of spectrum, there is potential for anti-competitive pricing by larger MCPs, creating barriers to entry or expansion for smaller MCPs, thereby harming competition.

5.42 For example, larger MCPs could charge higher termination charges to smaller MCPs than they charge to each other. A new entrant, given its asymmetric position in the retail market with respect to the incumbent MCPs, could find itself at a disadvantage in offering retail access and outgoing call services if, for example, its incoming and outgoing traffic were not balanced.

5.43 However, if a smaller MCP is unable to negotiate reasonable terms for mobile call termination (or is unable to establish direct interconnection), it may instead seek to use another operator (such as BT) to transit the call to the relevant mobile network. The call will then be terminated under the terms of that transit operator's mobile termination agreement. BT offers such services and, therefore, the termination rate paid by BT to the other MCPs (and the transit charge) effectively acts a ceiling on the maximum charge any new entrant would have to pay, as discussed in section 4 above.[138]

5.44 Excessive termination charges could also lead to much higher charges for off-net calls than for on-net calls. This could create competitive distortions to the disadvantage of smaller networks, which again would be detrimental to consumers in the long run.

[137] For example, those who frequently change their (subsidised) mobile phone and also make few fixed to mobile calls are more likely to benefit from subsidies funded by high termination charges than those who do not change their handset from year to year and are frequent callers from fixed to mobile phones.

[138] An additional concern could arise in the event that there was not end-to-end connectivity among operators, since blocking particular number ranges would mean that, even if call termination to those number ranges was available on a transit basis via BT, exclusion from the retail market might still be a concern. Consumers would be affected by the strategic refusal by larger MCPs to allow their own customers to reach the customers of the smaller MCP, making that smaller MCP's services less attractive.

5.45 Excessive MTRs could distort consumers' choices between fixed and mobile services, reducing scope for competition between fixed and mobile networks in the longer term.

5.46 In our recent fixed narrowband market review, we concluded that consumers overall still tended to view fixed and mobile services as playing different roles, and that most consumers used both.[139] However, this picture may change in the future, and increasing scope for competition between fixed and mobile services may be a source of significant benefit to consumers – in the form of innovative services and lower prices – during the period under consideration in this market review (2011 to 2015). Therefore, the harm that could arise as a result of distortions of competition between fixed and mobile providers (or in tilting the playing field in a period when scope for fixed/mobile convergence may emerge) is likely to be significant.

Summary

5.47 Without regulation, the structure of prices in retail and wholesale mobile markets would be less efficient, harming consumers' interests by distorting customer choice, creating distributional impacts and restricting or distorting competition.

Question 5.1: Do stakeholders agree with the identified harm to consumers of excessive termination rates in the period 2011 to 2015?

Question 5.2: Do stakeholders consider there to be any other forms of relevant consumer harm that we have not identified?

[139] See: http://www.ofcom.org.uk/consult/condocs/retail_markets/statement/

Section 6

Remedies for addressing consumer harm following a finding of SMP

Introduction

6.1 Our May 2009 consultation sought comments on possible future approaches to MCT regulation, setting out six options for future regulation, including the possibility of deregulation. It also asked for stakeholders' views on whether, given the possible consumer benefits flowing from reductions in MCT charges, Ofcom should adopt a policy of reducing mobile termination rates as far and fast as possible.

6.2 This section considers our previous consultation and whether *ex post* competition law itself would be appropriate to remedy consumer harm.

6.3 Section 7 goes on to consider the question of whether to apply different regulatory remedies in these markets, including reviewing responses to the alternative approaches set out in the May 2009 consultation. section 7 also sets out our proposals for the regulation of MCT services for the period 2011- 2015.

6.4 Section 8 provides a summary of the market review process and a brief explanation of how the remedies proposed in this consultation apply to MCPs that have not been previously regulated.

6.5 Section 9 sets out detailed proposals for charge controls, including assumptions made in their formulation, the resultant MTRs and the proposed duration of a price cap.

6.6 Taken together, the analysis in these sections, in conjunction with the other parts of this document, and the analysis previously set out in our initial consultation, represents our regulatory impact assessment.

Better regulation and impact assessment

6.7 In line with our *Better Policy Making Guidelines*[140], in identifying the options set out in section 7, we have considered a wide range of options, including the option of not regulating (which is set out in paragraphs 6.20 – 6.37)

6.8 These sections, alongside the May 2009 consultation, form Ofcom's regulatory impact assessment of the options considered.

Ofcom's objectives in this review

6.9 Our May 2009 consultation highlighted the possible benefits to consumers of lower MTRs, irrespective of the basis on which rates were reduced. This raised a strategic policy question in relation to the future regulation of MCT charges:

"*Question 1.1 Should our policy approach to regulating MCT change? For example, given the possible benefits, should we adopt a policy of reducing termination rates as far and fast as we reasonably can, within the boundaries of sound economic policy,*

[140] See: http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

and whilst recognising underlying cost differences? If our policy approach did change, what do you think are the relevant factors for us to consider in deciding on the best future policy to regulating MCT?"

An objective of such a policy could be to allow greater flexibility at the retail level, thereby facilitating innovation among mobile providers in offering services to end-users.

Stakeholder responses

6.10 Respondents were divided in their responses as to whether MTRs should fall; however, on balance, they were not in favour of radically changing the current approach to regulation of MCT.

6.11 BT, H3G UK, Terminate the Rate, CMA, FCS and SSE were strongly in favour of lowering MTRs. H3G noted that this would allow more efficient investment and lower retail prices in mobile-to-mobile and fixed-to-mobile calls. It also noted that lower rates would reduce potential competitive distortions (between fixed and mobile CPs and between larger and smaller MCPs). C&W was also in favour of lower termination rates, but noted that it would be important to assess the impact on fixed network operators and new market entrants of lower regulated termination rates.

6.12 Orange, T-Mobile, O2, Vodafone, Tesco Mobile and Virgin Media were strongly against a policy of lowering termination rates. Some of these MCPs argued that there may be an impact on pre-paid users, in particular through access and subscription charges becoming higher, and that as a consequence some users may therefore no longer subscribe to a mobile service.

6.13 Some operators also noted a possible risk of mobile providers seeking to recover lost revenues by charging consumers to receive calls - i.e. moving to 'receiving party pays' retail prices. However, the risk of this, was in the respondents view, less than some other effects; for example, O2 argued that charges for non-call services (e.g. voicemail) might increase instead. Some MCPs argued that lowering termination rates would affect returns on investment, possibly to the extent that the intensity of competition in the market would be reduced.

6.14 Respondents also commented on the manner in which termination rates should fall. Of those in favour of lower MTRs, stakeholders favoured a clear and predictable reduction. For example, C&W commented in its response that any reductions in MTRs "should be brought about gradually to allow the market time to adjust to the changes that lower termination rates will bring".[141] On the other hand, some others preferred a more rapid reduction in rates.

Ofcom's view

6.15 In general, we see benefits to consumers flowing from lower MTRs (although these benefits need to be considered alongside any risks, particularly if MTRs fell below cost). Lower MTRs will allow for greater flexibility at the retail level and provide greater scope for mobile providers to differentiate their price plans and service packages. Our analysis of the effects of a reduction of mobile termination rates suggests that lower-volume users would not be particularly disadvantaged or need to give up their mobile service.

[141] www.ofcom.org.uk/consult/condocs/mobilecallterm/ p.2

6.16 The analysis presented in section 9 and annex 13 examines suggestions, put forward by some of the MCPs, that more vulnerable consumers might be negatively affected. Some MCPs claimed that a reduction of MTRs to lower levels would have two primary distributional impacts:

- a substantial drop in mobile take-up; and
- low-usage mobile subscribers losing out and, in some case, even heavy users losing out.

6.17 On the basis of the evidence, discussed in detail in annex 13, we think that these concerns are less significant risks than industry stakeholders submit. Any negative impact on consumers as a result of falling MTRs is important to consider – both in terms of aggregate impact, and their impact on particular consumer groups (or individuals). Although we anticipate some impact, we think that the best available evidence suggests this will be limited, and likely to be felt by less price-sensitive consumers (that is, those prepared to pay more for mobile service) rather than less well-off groups of consumers.

6.18 That leaves the wider question of whether we should adopt a policy of reducing rates as far and fast as we reasonably can within the bounds of sound economic policy. In the light of the proposals set out in this document, we do not propose to change Ofcom's established policy in this area. That is, we propose to continue to set rates (where it is necessary to do so) at levels that are cost-oriented by the application of robust economic policy, without any preference for outcomes that favour either higher or lower rates.

Option of de-regulation, reliance on *ex-post* intervention

6.19 In the May 2009 consultation, we considered whether it was necessary to regulate MCT at all and asked: could we rely solely on *ex-post* competition law or use our dispute resolution powers?

6.20 In general, a market which is effectively competitive is likely to best meet the demands of consumers. In competitive unregulated markets, all players have the freedom to negotiate different wholesale agreements dependent on their commercial interests, and are able to reflect this in their approach to retail price levels and structures.

6.21 Removal of regulation from MCT could allow mobile providers this flexibility, allowing them to negotiate wholesale termination rates commercially and thereby enabling them to structure them in a way that best suits their commercial interests, which in a competitive market would, under most circumstances, also benefit consumers.

Stakeholder responses

6.22 The majority of respondents, including all five national MCPs and several major FNOs, considered that regulation was still required, at least in the period under review. Respondents also considered that, of the options for regulating MCT charges, a charge control based on either a LRIC+ or pure LRIC approach would be most appropriate.

6.23 Asda (an MVNO) was alone in favouring immediate deregulation; it argued this would offer more flexibility in its control of mobile pricing structures and would deliver simplicity for consumers.

6.24 BT noted that deregulation would give mobile operators the ability to set excessive prices, while the existence of an incomplete waterbed effect would harm consumers and competition. Virgin Media noted that competition between mobile and fixed CPs could become more distorted under deregulation.

6.25 More generally, some MCPs believed that it would be unclear whether rates would be set above or below cost under deregulation. Some CPs also noted that deregulation would not be compatible with a finding of SMP under EC legislation.

6.26 However, MCPs in particular were keen to point out that circumstances may change in the future, and may support a shift to deregulation. Orange noted that deregulation should be considered in the next review covering the period from 2015 onwards if market conditions had changed, to address the underlying sources of market power in termination – for example if VoIP were to become widespread. T-Mobile noted that it should be our long-term aim to deregulate, and that we should start to plan for this, although it did accept the prospect of increased numbers of disputes as a possible downside of deregulation. Flextel also advocated an eventual shift to deregulation.

Ofcom's view

6.27 We agree with the majority of respondents, who acknowledge that regulation continues to be necessary and in the interests of consumers. We believe that MCPs continue to have the ability and incentive to set high MTRs. We consider that removal of *ex ante* regulation would allow MCPs to charge excessively high termination prices, leading to the problems set out in section 5.

6.28 It is also not clear, given our statutory responsibility to resolve regulatory disputes, that de-regulation would reduce the burden of regulation, as opposed to simply changing the way in which issues fail to be resolved by us. Lack of regulatory rules could increase the risk of negotiations failing, with disputes then referred to Ofcom for resolution. Many – perhaps most – negotiations about termination charges may have the characteristics of a zero-sum game, in which neither side has much incentive to compromise.

6.29 In some cases the parties may not reach commercial agreement, potentially leading to a breakdown in connectivity. If this happened, consumers would be unable to make calls to certain other consumers (where interconnection agreements for the provision of termination no longer exist) or, more generally, would not be able to enjoy the benefits of increased competition and lower prices for calls to mobiles.

6.30 Both past experience and economic theory point to MTRs being set too high under such circumstances (especially if fixed termination continues to be subject to regulation). We are not aware of any countries that, having reviewed the market, do not apply some form of regulatory approach to the setting of mobile termination rates.[142]

6.31 Although *ex ante* periodic reviews of mobile termination markets are resource-intensive both to us and to stakeholders, we believe that the benefits to consumers significantly outweigh the costs of setting regulation.

6.32 Under deregulation Ofcom would still have the power to apply the Competition Act 1998 and/or resolve disputes under the Act, in order to ensure that competition law is complied with and that the terms of commercial agreements are fair and reasonable.

[142] However, Hong Kong deregulated both mobile and fixed termination in April 2009

If deregulation succeeded, intervention by Ofcom under the above powers would be expected to occur less frequently.

6.33 However, reliance on *ex post* competition law has a number of disadvantages.[143] The principles of competition law, as they can be derived from the statute and existing case law, do not always provide ready-made solutions to the problems experienced in telecoms markets. While competition law can, where necessary, incorporate such highly technical matters, there is nonetheless a practical case for addressing such issues through sector specific regulation.

6.34 Reliance on *ex post* competition law may also not allow for the certainty of intervention that is necessary to give all parties confidence to plan their businesses and make significant investments within a clear and predictable regulatory environment. This was something noted by stakeholders in responses to our initial consultation.

6.35 Additionally, without the imposition of *ex ante* regulation to actively promote the development of competition where it is not effective and/or to protect consumers, it is unlikely that *ex post* general competition law powers would be sufficient.

6.36 Ofcom therefore believes that some form of regulation for MCT is required, at least in the short to medium term. This is not to say that a deregulatory approach will never be appropriate. Were it possible to remove or reduce the risk of market failure, and increase effective competition, a deregulatory approach may deliver benefits to consumers. We do not believe, however, that this is the case today, or likely to be the case over the period considered by this review.

6.37 The next section considers the options for regulation and sets out our preferred regulatory approach for MCT over the period of this review.

[143] The 2007 MCT Statement discusses this in detail, see section 8 (in particular paragraphs 8.36 to 8.40).

Section 7

Options for regulation - selecting a preferred remedy

Section summary

7.1 Section 6 considered the question of whether regulation was necessary in relation to mobile call termination, and set out our view that regulation remains necessary to address significant market power in MCT markets. In section 6, we explained why we are excluding the option of deregulation and reliance on competition law (Option 1).

7.2 This section considers, and rejects, a number of potentially radical reforms to MCT that we considered in our May 2009 consultation: capacity-based charging, reciprocity between mobile and fixed termination charges, and 'bill and keep'. Given the market conditions expected during the period 2011 to 2015, we do not think that any of these reforms would be in the interests of consumers. That does not rule out that any of them may become more attractive in future market reviews.

7.3 This section identifies potential remedies to SMP in the period from 2011 to 2015 and assesses the remaining options for regulating MCT:

Option 2	transparency obligations; requirement to meet reasonable requests for access to mobile call termination on fair and reasonable terms;
Option 3	as for option 2, with a charge control for MCT charges set at LRIC+;
Option 4	as for option 2, with a charge control for MCT charges set at pure LRIC.

7.4 In considering whether each of these options is appropriate for a particular MCP, we have taken into account the situations of different classes of MCP. In particular, we think that there are relevant differences between the four national MCPs (which have all previously been subject to regulation of MCT) and other MCPs. We think that it is relevant and reasonable to consider the question of whether a given remedy is necessary and proportionate to impose on the national MCPs first, and then to consider the question of whether that remedy might be necessary for other MCPs, in the light of those proposals.

7.5 We propose to adopt Option 4 – that is, regulating MCT charges to cost-oriented rates, set using pure LRIC, for the four national MCPs: Vodafone, O2, T-Mobile/Orange and H3G. These MCPs will also see their long-established obligations of transparency and reasonable provision of access continue. Additional detail about the nature of the charge control that we propose is set out in section 9.

7.6 We then propose to adopt Option 2 for all other MCPs which have a position of SMP. These MCPs will be required to publish their MTRs, and to meet reasonable requests for MCT on fair and reasonable terms. In most cases, symmetrical rates are likely to be fair and reasonable, but those rates will not be regulated directly at pure LRIC. This provides a reasonable degree of regulatory certainty while preserving the flexibility to deal with exceptional cases individually, if needed. To assist MCPs that are being regulated in relation to MCT for the first time, we provide more information about the regime that will apply to these providers, in section 8.

7.7 This section sets out our reasons for taking this approach, and our consideration of the alternative approaches discussed in the May 2009 consultation.

Approaches to regulation of MCT

7.8 Our May 2009 consultation set out a wide set of options for regulation of MCT. In addition to deregulation, the consultation sought views on :

- *A charge control using LRIC+.* This is the status quo, with charge controls set broadly consistent with the approach taken in 2007 (and previously) which allows for an element of fixed and common cost recovery.
- *A charge control using pure LRIC.* This is the approach recommended by the EC. It includes no allowance for recovery of fixed and common costs.
- *Capacity-based charges (CBC).* Under this approach MTRs would be set on the basis of the capacity required for terminating traffic. This changes the *structure* of prices, which are likely to be in the form of fixed monthly or annual charges for a given amount of capacity (rather than per minute usage charges, which currently apply).
- *Mandated reciprocity between MCPs (and potentially with fixed rates).* MTRs would be set at the same rate for all MCPs offering termination. Alternatively, MTRs could be set at the same level as fixed call termination.
- *Mandated "bill and keep" (B&K).* No payments for mobile call termination – that is, MTRs are set at zero by regulation.

As in 2007, we reject mandatory RPP and technical changes

7.9 In 2007 (that is, the previous market review) we also considered two alternative options that would potentially affect the structure of the call termination market: mandating a move to a receiving party pays (RPP) billing arrangement, or requiring technical changes to allow more than one CP to provide termination to a given number.

7.10 Neither of these approaches was considered particularly attractive, primarily due to relatively high costs and uncertain consumer benefits. At the time, industry, consumer and stakeholder responses almost unanimously agreed that neither approach was attractive.

7.11 We think that the fundamental characteristics of call termination (set out in sections 2 to 4) remain broadly similar to those we observed in 2007. This review has not considered again in detail these structural remedies, although we think there is sufficient evidence to propose that we exclude them as options, for the same reasons we gave in the 2007 Statement.

Options from the 2009 consultation

7.12 We now consider the 'non-LRIC' options set out in the May 2009 consultation: capacity-based charges, mandated reciprocity and mandated 'bill and keep'.

Capacity-based charges (CBC)

7.13 Under CBC, mobile termination rates would be set for specified network *capacity* (for example, on a monthly or annual basis) and would not directly depend on use (for example, minutes of traffic), unless specific costs varied with use. The overall amount paid for MCT may remain the same, but the structure of prices may better reflect the underlying causes of costs (upstream) and may also align better with retail price structures (downstream).

Stakeholders' views

7.14 Several stakeholders, particularly MCPs, saw value in further consideration of this option. In theory, CBC could lead to desirable outcomes, but the practical difficulties are currently likely to outweigh the benefits.

7.15 Both T-Mobile and Vodafone suggested that CBC warranted further study. In particular, Vodafone welcomed further discussion in the short term on some of the issues.

7.16 Several respondents recognised that CBC could allow a more efficient structure of wholesale charges, as it better reflected underlying cost causation, and was therefore more aligned with the development of IP network cost structures. Some respondents also noted that a switch to CBC was likely to reduce the risk of inefficient market entry.

7.17 One of the main arguments against adoption of CBC concerned the practical difficulty of implementation. In particular, Orange and Colt mentioned the difficulty of accurately forecasting changes in demand for capacity. Vodafone commented that there would be a need to agree an industry-wide capacity measure. Vodafone also noted that fixed capacity charges could be a matter of concern to smaller providers.

7.18 Other practical concerns raised by respondents included the risk to fixed CPs, the potential impact on number translation services (that is, non-geographic services in the 08 number range, where pence per minute prices are the norm), and the potential for inefficiently large volumes of calls being sent to MCPs.

Ofcom's views

7.19 In theory, CBC may be an efficient structure for regulating MCT charges, but practical issues would make implementation disruptive and complicated. Further, the evolution of telecoms services in the UK means that a fundamental shift in the structure of MCT charging – as suggested by CBC – would be likely to affect a significantly wider range of services.

7.20 Upstream, a capacity-based charge better reflects cost causation because relevant costs are typically driven by an increase in demand for capacity.[144] Downstream, retail packages are increasingly moving to flat-rate packages.

7.21 To the extent that next-generation network (NGN) technology increasingly causes network costs to be more fixed than variable with respect to traffic and capacity, CBC

[144] 'Cost causation' is a widely recognised principle applied in regulatory economics. Cost causation requires that costs should be met by those whose actions cause those costs to be incurred. It is one of a number of cost recovery principles that Ofcom (and other regulators) consider when regulating prices

may be more consistent with the structure of costs incurred by providers using converged IP networks. Another advantage is that capacity on converged networks can, by definition, be used for a variety of downstream services, and CBC may be linked to a move to allow interconnecting service providers to purchase capacity for whichever services they wish to supply, including, but not limited to, mobile voice services.

7.22 We therefore consider that a switch to CBC might be appropriate in the future, and we would be willing to work with industry to further explore CBC. However, at present, we do not believe it to be a viable option.

7.23 The most significant obstacle to CBC is the practical difficulty of implementation, particularly if providers do not have an incentive to cooperate in its introduction. Previous generations of telephony networks use technology designed to be shared among voice calls (while maintaining voice quality of service) in order to operate efficiently. A switch to CBC is likely to require a fundamental change in how networks manage available capacity. Capacity usage would need to be actively monitored to efficiently manage the network and to ensure capacity requirements were met. For all these reasons, the implementation costs for CBC may be very significant.[145]

7.24 Furthermore, calculating capacity-based charges is difficult and likely to be contentious. In particular, trying to establish the appropriate amount of capacity that should be used to set the appropriate charges is challenging. If set too low, charges may not reflect underlying capacity deployment costs. If too high, smaller providers could be forced to buy more capacity than they need, which may restrict entry or limit expansion.

7.25 We also note that the adoption of CBC as a remedy will not remove the need for MTRs to be set at some measure of cost.

7.26 We therefore reject the option of adopting CBC in this market review.

Mandated reciprocity

7.27 In the May 2009 consultation, we considered whether it would be appropriate to apply mandated reciprocity on either a mobile termination basis (that is, all MTRs are the same) or setting both fixed and mobile termination rates on a reciprocal basis (that is, MTRs and FTRs are the same). The issue of mobile termination reciprocity is considered further in this section (paragraphs 7. 69 – 7.74) in the context of the proportionality of cost orientation for non-national MCPs. Initially we consider the issue of fixed/mobile reciprocity.

7.28 In the context of this market review, this approach would set MTRs at fixed rates. This might be appropriate in a world of increasing service convergence, where providers offer increasingly 'hybrid' services that are neither wholly 'fixed' or wholly 'mobile'.

Stakeholders' views

7.29 In response to our initial consultation, the vast majority of stakeholders believed that mandated reciprocity was not appropriate at present.

[145] For more information about Ofcom's approach to capacity-based charging and next-generation networks.

7.30 Virgin Media, T-Mobile and C&W noted that if services did not converge, and underlying costs are different, then a single rate would set charges below cost for mobile providers. Orange and O2 also noted that charges set on a reciprocal basis would not be reflective of a mobile provider's costs. T-Mobile and O2 also argued that an approach to mandate reciprocity between fixed and mobile providers would be inconsistent with the EU framework.

7.31 BT considered that while such an approach was unlikely to be appropriate at this time, there are reasons why we should aim for reciprocity in the longer term. It also pointed to the US experience as an example of practical feasibility. However, Colt noted that experience in the US had shown that it could be detrimental to fixed usage.

7.32 BT recommended that we plan for mandated reciprocity for the next market review, and make a statement about our intentions to implement, well in advance.

Ofcom views

7.33 Given the current uncertainty surrounding the adoption of fixed and mobile convergence, the rate of possible convergence and the likelihood that at present reciprocal rates may set MCT charges below cost, we believe that this approach may be possible in future, but is unlikely to be viable over the period of this review.

7.34 There would be some benefits to fixed/mobile reciprocity. A single lower termination rate would provide a simple and clear regime for all providers and would give clarity to prospective new entrants. In doing so, it would address the technological and service convergence challenges that are faced by cost-based methodologies. Particularly given the findings of the MSA consultation regarding the strategic uncertainties facing the mobile sector[146] (and the prospects for fixed-mobile convergence), we see real value in having a simple regime in place.

7.35 In addition, it is also a far simpler regulatory approach, which, once a single 'efficient' benchmark was set, would significantly decrease the regulatory burden of the termination regime. However, the process of agreeing this as an approach and identifying a benchmark might be very challenging.

7.36 A potentially significant problem with setting reciprocal rates arises where services are not convergent or do not converge as quickly as expected. If this was to be the case, and as the underlying costs for mobile and fixed networks are different (and likely to remain so in the absence of convergence), reciprocal charges may lead to charges that are below cost for mobile termination (while remaining at cost for fixed termination).

7.37 However, there may be circumstances in which mandated reciprocity might be economically efficient.

a) If it was considered appropriate to recover the common costs for both fixed and mobile services through the retail side of the market (i.e. consistent with the arguments set out under the pure LRIC approach discussed below in paragraphs 7.116 & 7.118 and in more detail in the annex.

b) The technology used to provide both fixed and mobile services may become increasingly similar over the next few years. For example, a widespread femtocell

[146] See in particular section 7 of MSA I.

deployment with fixed broadband as backhaul may blur the distinction between fixed and mobile services. If this was to occur to any significant extent, the costs of fixed and mobile termination might become increasingly similar. In this case, it could make sense to use the cost of the most efficient operator to set the termination rates of all operators, irrespective of the precise technology used.

7.38 Finally, the presence of uninternalised call externalities (as discussed below in relation to B&K) may justify a further reduction in termination rates, which might bring mobile and fixed termination rates closer together.[147]

7.39 We therefore reject the option of adopting FTR / MTR reciprocity in this market review.

Mandatory 'bill and keep'

7.40 Mandatory 'bill and keep' (B&K), was also considered in our May 2009 consultation. This approach has been extensively discussed by industry and by the ERG.

7.41 Under mandated B&K, termination rates are effectively set at zero, with payments among CPs for termination services effectively waived. Each provider *bills* its own retail customers and *keeps* all the revenue, not making any interconnection payment.

7.42 The primary rationale for mandating B&K would be the presence of significant uninternalised call externalities. It would be economically efficient to adopt B&K if the balance of uninternalised caller and recipient benefits matched the balance of call origination and termination costs.

7.43 Under any of the other remedies considered (in respect of charges), the caller bears the cost of the call, even if both caller and recipient benefit from the call. B&K explicitly recognises that two parties benefit from a call, and it may therefore be more efficient for each party (caller and recipient) to share the total cost of the call by paying for the costs incurred by their own network.[148]

7.44 One way in which the cost of a call could be shared between the caller and the recipient is that the caller would be charged for origination, while the recipient would be charged for termination, by their respective networks. In order to maximise (static) economic efficiency, this approach implicitly requires that the relative value of the call to the caller and to the recipient matches the costs of origination and termination respectively. The recipient network would have flexibility to recover termination costs either through recipient call charges or through higher subscription fees.

7.45 Several recent theoretical papers have advocated the adoption of B&K as the most appropriate regime in the presence of (uninternalised) call externalities.[149] The

[147] Note however that unless they are set at zero (as under a B&K approach), some differentiation is still likely, as the traffic-sensitive costs between fixed and mobile networks differ.
[148] See DeGraba, DeGraba, P. (2000), "Bill and Keep at the Central Office as the Efficient Interconnection Regime", OPP Working Paper Series, 33. .
[149] See Berger, U. (2005), "Bill-and-Keep vs. Cost-Based Access Pricing Revisited", *Economics Letters*, 86(1), 107-112; Cambini C. and Valletti T. (2008); Cambini C. and Valletti T. (2005), "Investments and Network Competition", *RAND Journal of Economics*, 36, 446-467; DeGraba, P. (2000); DeGraba, P., (2002), "Bill and Keep as the Efficient Interconnection Regime? A Reply", *Review of Network Economics*, 1(1), 61-65; and DeGraba, P. (2003), "Efficient Inter-carrier Compensation for Competing Networks When Customers share the value of a call", *Journal of Economics & Management Strategies*, 12(2), 207-230.

general conclusion from this literature is that there is no wholesale regime that can be expected to be efficient under all circumstances (or for all types of calls), but B&K is likely to perform better than average.

7.46 We are not aware of any empirical work systematically assessing the size of call externalities or the degree of possible internalisation of call externalities by consumers, or by CPs on behalf of consumers. Such data would be critical in reaching any conclusion on the desirability of a mandated B&K regime. Without such information the case for mandating B&K is significantly less clear.

Stakeholders' views

7.47 Most respondents opposed this option. While some argued in favour of a B&K regime, or said that it could work in theory, there were practical concerns about its implementation.

7.48 In general, respondents agreed with our analysis that a B&K regime would be a simple and transparent approach, and would reflect uninternalised call externalities.

7.49 On the other hand, respondents also noted the regulatory risks, as there is little evidence suggesting the existence of uninternalised call externalities. Orange argued that it might distort competition between fixed and mobile CPs if call externalities differed between fixed and mobile CPs.

7.50 Several respondents also argued that it would affect investment incentives due to 'hot-potato' routing, and that it would also impose operational problems (e.g. identification of traffic).[150] A number of respondents also noted potential downsides to consumers in that it might risk an increase in spam and nuisance calls.

7.51 Orange, T-Mobile and O2 argued that mandating B&K would be incompatible with current EC framework. In particular, T-Mobile noted that it would be inconsistent with Article 8(2) of the Framework Directive (which requires NRAs to promote and support competition); Orange noted that it would contravene Article 13 of the Access Directive as it would require an operator to provide a service below cost.

7.52 Vodafone also noted the cost and complexity of implementation, noting that it would involve monitoring arrangements and contractual negotiations.

Ofcom's views

7.53 B&K offers some benefits, particularly in terms of the simplicity and transparency of approach and also in terms of the flexibility provided to CPs in setting retail tariffs. However, assessing the size of call externalities or the degree of possible internalisation, coupled with the potential problems with compatibility with the EC framework, would make mandating B&K difficult.

7.54 In addition, as noted by respondents to our May 2009 consultation, there are significant practical problems associated with the implementation of a B&K regime.

[150] By "hot potato routing" we mean the incentive for MCPs to hand-over (and receive) traffic at the nearest handover point to minimise their network costs as there is no corresponding income arising from incoming termination traffic.

7.55 As far as we are aware, no NRA in the world mandates B&K[151], although there are some examples (notably in the US) where B&K is the result of commercial negotiations.

7.56 Furthermore, adopting a mandated B&K regime would mean a departure from rates that reflect the underlying costs of providing MCT. This would be a significant change from past regulation, and would raise some significant issues in terms of compatibility with the EC framework.

7.57 We therefore reject adopting mandated B&K as an option for regulation of MCT in this review.

Our conclusions on these alternative approaches

7.58 Given the arguments set out above, and in the light of responses to the May 2009 consultation, we believe that none of the above alternative options for controlling MCT charges appear viable over the period considered by this review. In the future, as the mobile market continues to develop, and in particular as fixed and mobile services become increasingly converged, some form of alternative approach, like those outlined above, may be more attractive than the current regime. However we do not think this is likely to be the case over the period considered by this review.

7.59 Having excluded the more radical approaches set out in the May 2009 consultation, we now consider what remedies may be suitable to achieve the core objective of this market review, which is to address the issue of SMP in each proposed market.

7.60 To do so, for each remedy, we have considered initially the situation of the four national MCPs. These MCPs differ in some important respects from other MCPs, and have relevant shared characteristics:

7.60.1 They are more established in the market. H3G, the most recent entrant of the four, entered on 3 March 2003.

7.60.2 They are experienced in managing regulatory obligations, including in relation to MCT. They are well-resourced, with sophisticated regulatory affairs and wholesale interconnection services functions.

7.60.3 They operate both as a significant network operator (that is, maintaining and operating a radio access network on a wholly-owned or equally-shared basis) and as a substantial retail presence.

7.61 Having considered the question of whether a given remedy is appropriate for the four national MCPs, we then consider whether it is necessary to extend that remedy to the MCPs in other proposed MCT markets.

[151] Note that Singapore is the only example close to a mandated B&K regime we are aware of – see annex 8.1 of our May 2009 consultation for further details.

Price transparency

7.62 Can price transparency, alone, address SMP in termination markets? We do not consider that it can, in the case of MCT. In principle, price transparency (for example, a rule to publish MTRs) could provide a constraint on MTRs if that information changed consumer behaviour in a way that exerted competitive pressure on firms setting MTRs. In practice, it is unlikely that transparency of interconnection prices affects consumers' behaviour to an appreciable extent.[152] Consumers do not, for the most part, take account of the cost of being called when they purchase their mobile services, as (under Calling Party Pays (CPP)) called parties do not pay to receive calls. Furthermore, the calling party (who pays for the call) cannot substitute other ways of contacting a particular mobile number, and the price they pay is set by their own network.

7.63 While price transparency may result in consumer pressure and lobbying, this would be unlikely to exert sufficient pressure on MCPs to ensure that the price is at the competitive level, unless the levels of MCTs were such that they affected the decision of consumers to subscribe to that network. We do not think that this is a plausible outcome. The level at which MTRs could have such an effect is unknown - although MTRs much higher than those prevailing today have been tolerated by called parties in the past, and appear to have had little impact on subscription decisions.

7.64 This suggests that a price transparency requirement, by itself, would not impose a sufficient constraint on terminating providers.[153] But there is an additional question: does the imposition of a transparency requirement benefit consumers?

7.65 A rule to publish MTRs sets clear expectations for interconnecting parties as to the charges for MCT and would facilitate monitoring and compliance. Furthermore, the costs of complying with transparency obligations are likely to be relatively low.

7.66 In the case of the four national MCPs, such an obligation has been in place for a number of years, and has not proved unduly burdensome. It has also aided compliance and brought the benefit of ensuring that providers are able to monitor their competitors' compliance with charge controls, assisting enforcement.

7.67 In the case of the other MCPs, we see no material distinctions that would cause us not to also apply a transparency rule to those operators.

7.68 Therefore, we are proposing to require all MCPs to publish their MTRs, notifying 28 days prior to any changes being made. This will provide certainty to all providers purchasing MCT services and will complement the other controls discussed below.

7.69 To assist in market monitoring, and to enable early visibility of price changes that may lead to disputes, we have also provided that price changes be notified to Ofcom five working days prior to this notification to call termination purchasers.

Question 7.1 – do stakeholders agree with Ofcom's view regarding the need for transparency in MCT charges?

[152] Noting that the main driver of consumers' behaviour is likely to be the retail price they pay to call a number in a given mobile number range.
[153] This conclusion is also consistent with the conclusion to the same question reached in the 2007 Statement (eg at paragraph 8.76).

Provision of network access on "fair and reasonable" terms

7.70 The term 'fair and reasonable' (F&R), has been applied previously as a regulatory obligation when requiring provision of network access. Given that all MCPs hold a position of SMP in relation to the provision of MCT services, and may have incentives to deny access to MCT to other providers (as discussed in sections 3 and 4) there is a need to ensure, through regulation, that other providers have access to these services. A requirement to do so on 'fair and reasonable' terms provides some scope for interpretation.

7.71 In the past, F&R has been considered as similar, in its application, to a requirement that access is provided on a cost-oriented basis. The 2007 MCT Statement refer to this interpretation being applied in both the UK and other jurisdictions.[154]

7.72 In the context of its application as a remedy to SMP, the potential for freedom of interpretation has been a cause for concern in previous MCT reviews.

7.73 The main concern raised in previous reviews was the regulatory uncertainty brought about by providers setting charges based on their interpretation of a F&R condition, in the absence of any other restriction on MCT charges. Such an outcome would be likely to lead to disputes and appeals, requiring Ofcom to resolve disputes and set charges on a piecemeal basis.

7.74 Such concerns might be exacerbated with an increase in the number of proposed markets involving new and less established players. We believe therefore that there are clear benefits in providing guidance on how we would typically apply the proposed condition of 'fair and reasonable' MTRs to MCPs.

Guidance on 'fair and reasonable' MTRs

7.75 We believe there are two main issues to address under this guidance, firstly concerning the issue of symmetrical rates (as put forward by the Commission in its Recommendation (see paragraphs 7.93 – 7.107 below for further detail) and secondly, to address the possible concerns over connectivity that might be faced by new entrants requesting network access.

Symmetry of MTRs

7.76 We believe that MTRs set under the glide path proposed for the four national MCPs sets an appropriate benchmark for the efficient level of MTRs set by all MCPs. It follows that MTRs set at this level would therefore be considered to be 'fair and reasonable'. This is consistent with the regulation of SMP in wholesale geographic fixed narrowband call termination, where fixed CPs other than BT are not subject to a specific charge control.[155], and also with what we said in the 2007 MCT review.[156]

7.77 MCT is a service provided by competing (or potentially competing) networks. As such, MTRs provide an opportunity to raise rivals' costs. Moreover, MCT is a largely

[154] See in particular paragraphs 7.38 to 7.41 of the 2006 MCT consultation, and paragraphs 8.41 – 8.54 of the 2007 MCT statement.
[155] See para 12.69 et seq. of *Review of the fixed narrowband services wholesale markets* seq. of http://www.ofcom.org.uk/consult/condocs/wnmr_statement_consultation/main.pdf
[156] www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf

homogenous service. In competitive markets for homogenous services we would expect the same price for competing services, and therefore insofar as regulation seeks to mimic the outcome of a competitive market, this provides a strong rationale for symmetric MTRs. Allowing new entrants higher MTRs may provide an incentive to inefficient entry.

7.78 We recognise that different MCPs will have different networks and some of these networks may differ from those used by their competitors. There are differences between the networks of the four national MCPs (for example, in spectrum holdings (quantum and frequencies), the extent of traffic using 3G termination as against that using 2G termination, the volume of data traffic, and the planned speed of migration to 4G services).

7.79 Nevertheless, setting a cost-based MTR specific to each MCP (even specific to the four national MCPs) is undesirable for a number of economic and pragmatic reasons:

7.79.1 First, it is unlikely that with a growing number of new entrant MCPs, it would be feasible to produce a cost model to determine network-specific rates for so many MCPs. In particular, the MCom / T-Mobile dispute highlighted the difficulty in establishing the costs of rapidly evolving new entrant networks.

7.79.2 Second, as explained in section 9 below, we propose to set MTRs for the four national MCPs on the basis of a hypothetical efficient network cost model. While that model is built around a national 2G/3G network operator, it is not intended to precisely mimic any single operator, but rather to capture the network costs of an efficient national operator;[157]

7.80 It is possible that entrants may have lower costs than incumbent MCPs, though this is by no means clear-cut. In the short-run, unit costs may even be higher although we would expect entrant lifetime network costs to be lower otherwise entry is unlikely to be viable in the first place. In so far as symmetric MTRs create an incentive for entry by new MCPs (because they can earn profits if they have lower lifetime network costs than are implied by our hypothetical efficient network cost model), this is likely to be desirable for competition and consumers. Moreover, many, if not all, of the technology choices available to entrants will be also be available to incumbents. For these reasons, we believe that MTRs should be symmetrical.

Connectivity

7.81 A possible concern for new entrants in achieving interconnection with an established MCP may be how calls to their numbers are charged. Several respondents have raised concerns during this consultation that their numbers have been blocked or kept out of bundles by large MCPs.

7.82 Our *End-to-End Connectivity Statement*[158] sets out our view that end-to-end connectivity is important both for competition generally and for consumers individually. Competing communications providers need to be able to interconnect with other networks in order to provide a full service to their customers. Customers expect to be able to call every other retail customer irrespective of the network to which the called party is connected.

[157] Efficient in the sense of capturing the increased productivity of network assets through time, the modern equivalent asset trends of network assets and operating costs, the economies of scale as traffic grows and the economies of scope from providing multiple services in addition to MCT.
[158] www.ofcom.org.uk/consult/condocs/end-to-end/statement/statement.pdf

7.83 The emergence of bundles of minutes to 'all UK mobiles' (or some variant of that) has been a development in the retail market that has benefited consumers. Consistent with the EU regulatory framework, we do not regulate retail behaviour in competitive markets, except in specific circumstances (for example, to set minimum standards for consumer protection against unacceptable practices like mis-selling).[159] However, we intend to closely monitor developments in relation to 'all network' bundling to see whether the commercial pressures that have led to the emergence of today's services are likely to extend those arrangements to include calls to new operators. Consumers appear to value the certainty of a bundle of minutes (and the simplicity of not having to consider different calling rates to different networks), and this may mean that, as new providers enter the market, it is in the interests of all providers to make individual decisions to include those new providers' numbers within their retail bundles. (There is no guarantee that this will occur.)

7.84 It appears to us that MTRs have an indirect but significant role to play in the decisions of providers to include services within their retail bundles. Where in the past high MTRs may have lead to numbers being blocked, or kept out of bundles, we would expect the prevalence of symmetrical MTRs and the need for end-to-end connectivity to help reduce the scope for this issue to act as a barrier to the emergence of retail price arrangements, including bundles, that fully reflect consumers' preferences.

Conclusion

7.85 We believe that an F&R remedy, alongside the guidance regarding symmetry of rates and connectivity as set out above, and the possibility for dispute resolution, provides sufficient controls to the level of MTRs charged by smaller, newer MCPs.

7.86 We do not believe, however, that a F&R requirement is, of itself, sufficient to control the MCT charges set by the four national MCPs. We believe that the absence of a specific charge control applied to the four national MCPs is likely to lead to the kind of undesirable outcomes discussed briefly above (in section 5) and more fully in previous reviews.

Question 7.2 – Do stakeholders agree with our preliminary view on application of a condition requiring network access to be provided on F&R terms?

Additional controls for the four national MCPs

7.87 On the basis of the discussion above, our initial view is that conditions requiring transparency and access on fair and reasonable terms are likely to be sufficient controls for the SMP of smaller, newer MCPs. For the four national MCPs we consider that additional controls, similar to those already in place for these MCPs, are appropriate. The first of these is prohibition of undue discrimination, the second is a charge control.

No undue discrimination

7.88 As noted in previous reviews, a prohibition of undue discrimination is not intended as a blanket prohibition on all forms of discrimination, and some forms of discrimination may not raise concerns. However, in previous MCT reviews a prohibition on

[159] We also act to enforce competition law, exercising competition law powers under the UK's concurrency scheme.

discrimination was considered important to ensure that MCPs with SMP did not use their position to distort and reduce competition in the retail mobile market, particularly with respect to smaller new entrants. Such concerns may still be relevant today, particularly given the emergence of smaller MCPs.

7.89 However, such concerns need to be viewed in the light of the other regulatory remedies being applied, and the possibility for any discriminatory behaviour to be addressed through *ex post* powers. Applying an *ex ante* prohibition on all discrimination could have the effect of limiting the emergence of innovative, more efficient, charging agreements between certain providers.

7.90 Although we consider that the arguments are finely balanced, at this point we are proposing to include a non-discrimination obligation for the 4 national MCPs. A prohibition of undue discrimination is a long-standing SMP remedy in termination markets for larger national MCPs, and in our view the 4 national MCPs maintain sufficient size and scale to warrant retaining this condition upon them. While we are proposing other remedies for MCPs such as transparency, a fair and reasonableness obligation and a charge control for the four national MCPs, these remedies essentially relate to pricing. While no undue discrimination would include pricing conduct, there are other forms of non-price conduct by which MCPs might discriminate. For example, such conduct might include service degradation for particular types of terminating traffic (e.g, competitor's traffic). We therefore propose a no undue discrimination obligation for the four national MCPs. In the case of the smaller MCPs, we are not proposing to impose this obligation. In the case of these providers, the facts are different: they have not previously had this form of obligation imposed on them (raising concerns about the impact of doing so), there are fewer grounds for concern about impact on retail markets and, on balance, the case for imposing such a condition appears not to be sufficiently made out to warrant doing so, at this stage.

Question 7.3 – what are your views on the need for an ex ante undue-discrimination condition for the period of the next review?

Regulating MCT charges

7.91 On the basis of the discussion set out above, our initial view is that conditions requiring transparency, access on fair and reasonable terms (and the possibility of a prohibition on undue discrimination,) while likely to support a suite of remedies on MCT, are unlikely to be sufficient to control the charges of the four national MCPs.

7.92 In the context of proposing to impose a charge control on the four national MCPs, we consider that transparency, and a requirement to provide network access on F&R terms, alongside a clear indication on our interpretation of 'fair and reasonable' (which includes reciprocity under most circumstances) is likely to be sufficient to limit MCT charges on newer and smaller MCPs. Critically, this means that, if there are facts unique to particular smaller MCPs such that it is appropriate to take a different approach to call termination charges in that case, there is commercial flexibility to do so (and, if necessary, for Ofcom to do so in resolving a dispute). On the evidence seen by us so far, we believe deviating from reciprocity would only be necessary in exceptional circumstances, but given the dynamic nature of the sector and the scope for new services and technologies to be deployed, we see these proposals as striking an appropriate balance between regulatory certainty and flexibility. This approach has the added advantage of being proportionate to the size, scale and available resources of these providers.

7.93 Having concluded that additional remedies on the four national MCPs are required, we consider below, the remaining options for regulating MCT charges, as set out in our May 2009 consultation (that is some form of LRIC based charge control). We then present our preferred option for the period 2011-2015.

7.94 The EC's Recommendation sets out the EC's views on how NRAs should set charge controls on terminating providers. Therefore, before considering the two remaining options, we set out the main provisions of the EC's Recommendation, and our views on how to apply that Recommendation in this market review.

EC Recommendation

7.95 As mentioned above, the EC published its Recommendation of 7 May 2009 on the *Regulatory Treatment of Fixed and Mobile Termination Rates in the EU* (2009/396/EC), which recommends that Member States (MS) adopt a common approach when setting price controls. The approach recommended is different to that previously used in the UK.

7.96 The main difference from the current approach is that the Recommendation favours recovering elements of common costs not from wholesale termination but from the competitive retail side of the mobile market. This approach would have the effect of reducing the level of termination charge.[160] The Recommendation also outlines the EC's view that all termination charges should be symmetrical.[161]

7.97 The approach in the Recommendation will apply only where it is clear that a price control SMP remedy is appropriate in the light of the application of the relevant legal tests, including those in the Communications Act 2003 at sections 47 and 88.

The 2009 EC Recommendation

7.98 The Recommendation was issued to member states by the EC under powers conferred on the EC in Article 19(1) of the Directive of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) (2002/21/EC). Recommendations issued under Article 19(1) aim to achieve the harmonised application of the provisions of the communications Directives and the achievement of the objectives set out in Article 8 of the Framework Directive. Article 8 contains the communications policy and regulatory principles that underpin the legal framework. These include the promotion of competition, internal market objectives and the interests of citizens.

7.99 Article 19(1) requires that MS ensure that national regulatory authorities take the utmost account of such EC recommendations. If a national regulatory authority chooses not to follow a recommendation it must inform the EC, giving the reasons for its position.

7.100 Ofcom notes therefore that, because it is based on Article 19(1), the Recommendation has an EU harmonising objective; this is a key aspect that Ofcom

[160] In our May 2009 consultation we quoted the ERG 'snap-shot' benchmark, which estimated the average EU mobile termination rate at 8.7 Euro cents. The latest ERG 'snap-shot' (July 2009) estimated the weighted average EU mobile termination rate at 6.6 Euro cents.
[161] See paragraphs 7.75 – 7.79 above regarding our view on the arguments around symmetrical MTRs, and our proposals for achieving symmetry.

has taken into account. This objective is further evidenced by the wording of the Recommendation itself. The second recital to the Directive states:

> "Although some form of cost orientation is generally provided for in most Member States, a divergence between price control measures prevails across the Member States. In addition to a significant variety in the chosen costing tools, there are also different practices in implementing those tools. This widens the spread between wholesale termination rates applied across the European Union, which can only be partly explained by national specificities."

Having regard to the Recommendation

7.101 We consider that the Recommendation is relevant to this market review, and that, therefore, we must have regard to it in determining our proposals. As part of the Member State to which the Recommendation was addressed, Ofcom is obliged to take it into account:

- Article 10 of the EU Treaty places an obligation on MS to facilitate the achievement of the Community's tasks. They must take appropriate measures to ensure fulfilment of the obligations arising out of the Treaty or resulting from actions taken by the institutions of the Community.

- Article 8(3) of the Framework Directive obliges national regulatory authorities to contribute to the development of the internal market by, *inter alia*, cooperating with each other and with the EC.

- Under Article 19(1) of the Framework Directive, national regulatory authorities must take utmost account of Recommendations made under that Article;

- Further, section 79(2) of the Communications Act 2003 requires Ofcom to take due account of all applicable guidelines and recommendations which have been issued or made by the EC.

- While the EC Treaty in Article 249 states that recommendations and opinions have no binding legal force, case law of the European Court of Justice[162] has altered this basic position and the Treaty wording now needs to be read in the light of that case law. Although EU recommendations (unlike other forms of EU legislation) do not have direct effect (to confer rights on individuals which are enforceable in national courts) nevertheless, national courts are bound to have regard to Recommendations in order to decide disputes submitted to them, in particular where they cast light on the interpretation of national measures adopted in order to implement EU law or where they are designed to supplement binding Community provisions. Ofcom notes therefore that if its decision were considered by a court or tribunal, that body would also be bound to take the Recommendation into account.

7.102 Further, we consider that when having regard to the Recommendation we must take account of both:

- the course of action which it recommends in relation to setting charge control and cost accounting obligations (the content of the Recommendation); and

[162] *Grimaldi* (C-322/88) [1991] 2CMLR 265

- the harmonising objective or intent of the Recommendation.

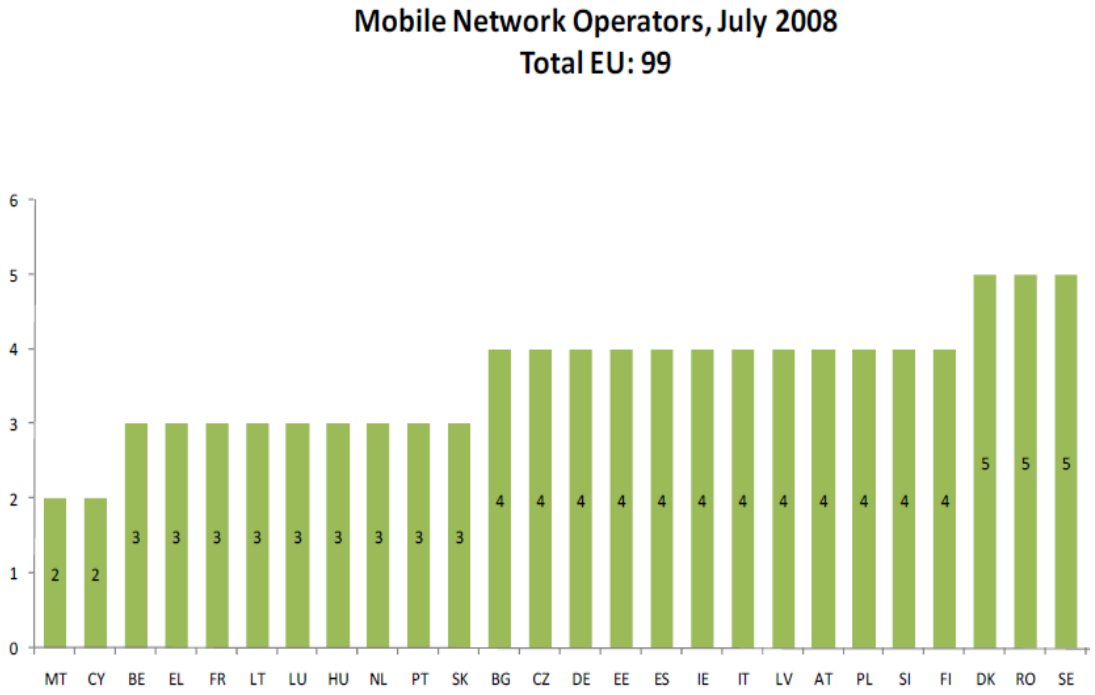
7.103 We consider that we would therefore need good reasons to depart from the approach to cost accounting that is recommended. For example, 'good reasons' in this context might include reasons why the United Kingdom should take action that runs counter to (and potentially frustrates) the harmonising objective.

Assessment of potential UK market differences

7.104 We have considered whether the situation in the United Kingdom is sufficiently different from other MS to justify departing from the Recommendation. For example, we have considered the position of the companies that we propose to regulate relative to other major EU markets.

7.105 In structural terms, the UK shares many features of other EU markets. As shown in Figure 7, taken from the latest EU Commission implementation report, the UK resembles other Member States which have 3-4 main MCPs compared to the four main MCPs[163] in the UK (although there are a number of smaller MCPs in the UK).

Figure 7: EU implementation report comparison of larger MCPs

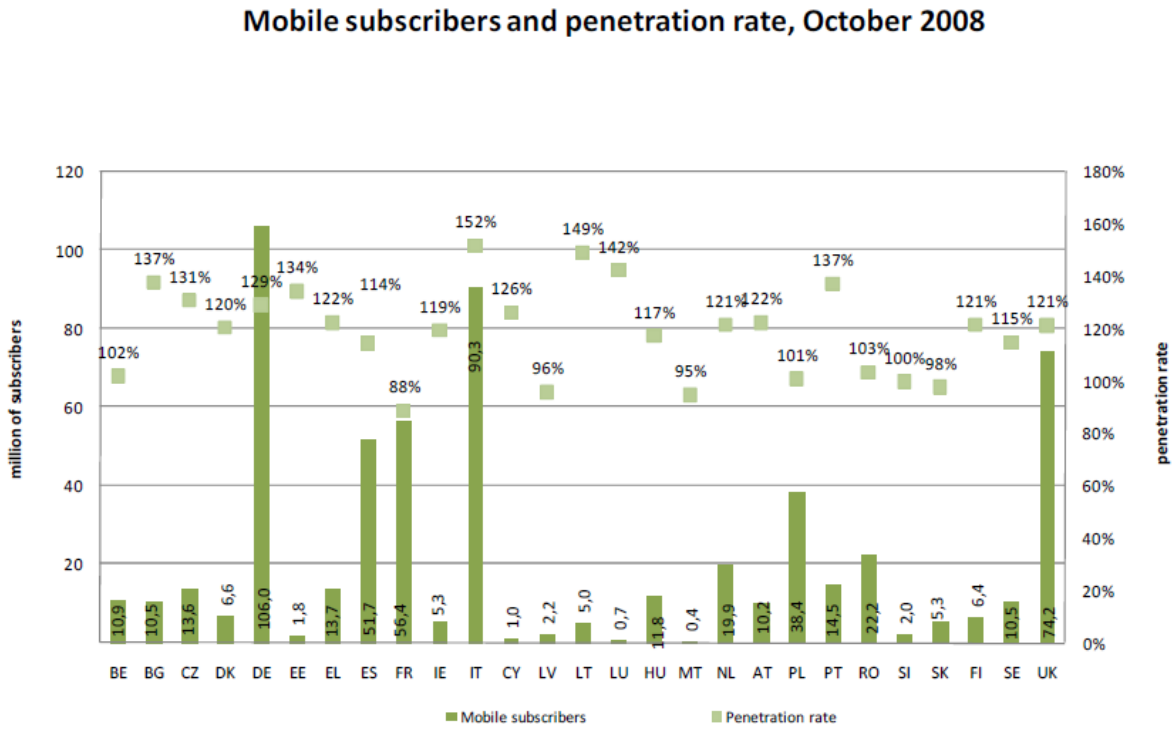


Source: European Commission, 2009[164]

[163] As the EU's comparison included five mobile network operators for the UK (i.e. the data was prior to the Orange and T-mobile merger), we have removed UK data from the comparison.
[164] Taken from Progress Report on the Single European Electronic Communications Market 2008, Vol 1, Part 1 **(**page 19): http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/14threport/Vol1Part1_30072009.pdf

7.106 As shown below in terms of overall penetration rates, the UK is very close to the overall EU average of 119%. This shows that the UK is similar in terms of the maturity of its mobile market (based on penetration of subscribers).

Figure 8: EU implementation report comparison of penetration rates across Member States

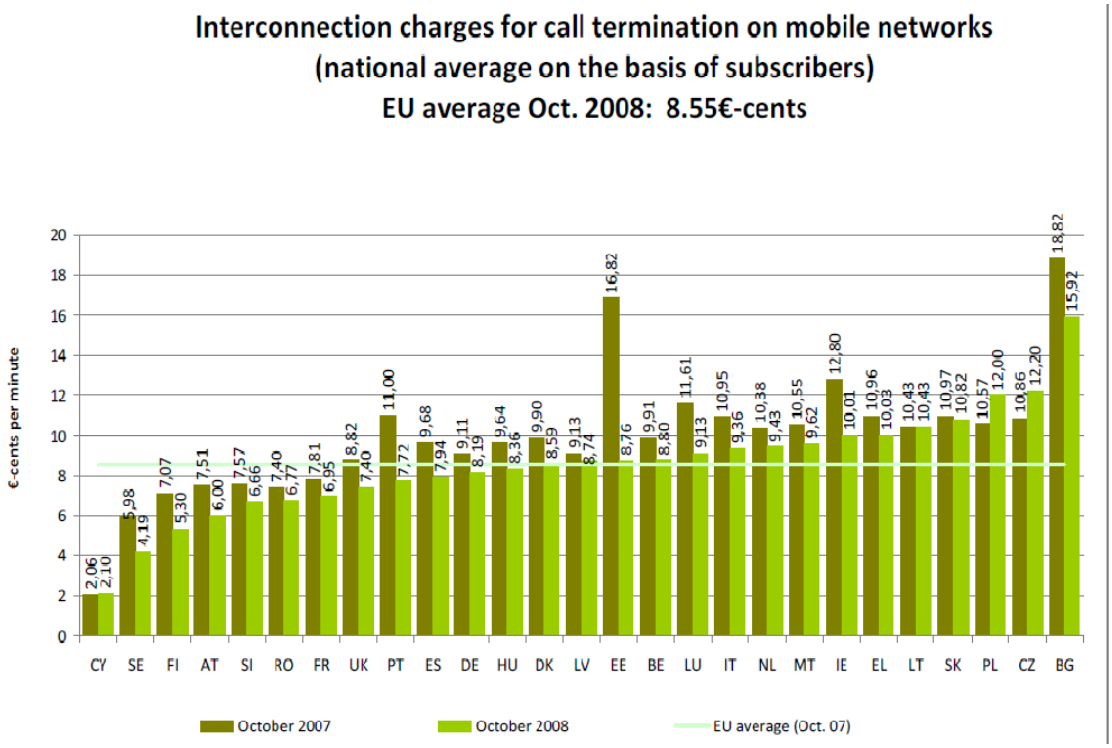


Source: European Commission, 2009[165]

7.107 All European domestic telecoms markets operate calling party pays regimes, as can be seen from the figure below. The implementation report also shows that UK termination rates are close to the overall EU average.

[165] Progress Report on the Single European Electronic Communications Market 2008, Vol 1, Part 1 **(**page 13): http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/14threport/Vol1Part1_30072009.pdf

Figure 9: EU implementation report comparison of MTRs



Source: European Commission, 2009[166]

7.108 While profitability for the MCPs has been somewhat lower for in the UK market than in any other large EU market, the operators' profitability is no expected to increase following the implementation of the T-Mobile/Orange merger. While it is too early to know what precise effect this will have on profitability, this would seem to eliminate the main potential source of asymmetries between the UK market and the other main EU markets.

7.109 In conclusion, we have not identified any UK-specific reasons that would support a decision to depart from the Recommendation's approach to setting regulated MTRs.

Question 7.4 - Do stakeholders believe that there are any circumstances or situations where the UK differs from other EU markets to the extent that would support a departure from following the EC Recommendation?

7.110 In terms of the Recommendation, we have also considered the merits of the pure LRIC approach, as recommended, against the LRIC+ approach traditionally used in the UK. We discuss this further below, and in more detail in annex 12. Our analysis suggests that there are merits in the pure LRIC approach as well as in the LRIC+ approach, and the economic judgement on which is better is finely balanced. Therefore, in the absence of sufficient reasons to depart from the approach set out in the Recommendation, we think that it is appropriate to follow it.

[166] Progress Report on the Single European Electronic Communications Market 2008, Vol 1, Part 1 (page 13): http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/14threport/Vol1Part1_30072009.pdf

Charge control options

7.111 In the May 2009 consultation, we set out two options for a cost based MTR control; either maintaining the current approach using LRIC+, or adopt pure LRIC.

7.112 There are several arguments for and against each approach. To help set out the arguments, and the relative benefits of each option, we have made an updated assessment against the same criteria as set out in the May 2009 consultation. The full assessment can be found in annex 12.

Assessment criteria for assessing LRIC+ vs. pure LRIC

7.113 In taking account of our statutory duties (see section 6) and the high-level considerations identified in paragraph 5.20, and having regard to meeting Ofcom's objectives for this review, we have adopted the following criteria for assessing the relative benefits of LRIC+ versus pure LRIC in this market review:

a) *Economic efficiency* – Does the option promote economic efficiency? This includes both a static assessment (i.e. whether consumers are likely to benefit in the short term from lower prices) and the impact that the various regimes may have on incentives to invest.

b) *Competitive impacts* – Does the option promote or harm competition among MCPs? Will it affect competition between mobile and fixed CPs and if so, how?

c) *Distributional effects on consumers* – Which consumers will be better off, and which worse off, as a result of adopting the option? While the overall impact on consumers is examined under the concept of economic efficiency, the different approaches might have some distributional effects; for example, between high- and low-usage mobile users.

d) *Commercial and regulatory consequences* – It is also relevant to consider the practical implications of adopting each option. This examines the other relevant impacts on the industry, such as, for example, the risk of regulatory failure and the burden of regulation.

7.114 In assessing the relative benefits of the two options we have assigned particular weight to the economic efficiency and competitive impacts criteria, as these are most closely aligned with our statutory duties.

Adopting a LRIC+ or pure LRIC approach

7.115 The two approaches differ in terms of the amount of common costs they allow MCPs to recover from linear (i.e. ppm) MTRs.

7.116 LRIC+ is an avoidable costing methodology that calculates the cost of providing termination by considering the costs of an increment of output – that is total traffic, irrespective of where it was generated. It also includes a mark-up for common costs.

7.117 The allocation of common costs under a LRIC+ approach is complex. Some respondents have argued that in our LRIC+ model we should deviate from the approach used in the 2007 MCT Statement and allocate more common costs to wholesale call termination than to unregulated data services. Our 2007 LRIC+ model

allocated common costs to data and voice services, using an engineering model, in proportion to the network costs these services cause the hypothetical operator to incur. Respondents argued that the (wholesale and retail) margins for MCPs are currently significantly higher for voice calls and SMS messaging than they are for data services, and this should be reflected in the allocation of common costs. At this stage we are not proposing to change the approach we use to allocate common costs in the LRIC+ model for four main reasons:

7.117.1 First, it would be disproportionately difficult to do, given that our preferred approach is pure LRIC and to analyse in detail alternative common cost allocations when we are not proposing to adopt LRIC+ to determine the MTRs during the next charge control period would be a significant risk.

7.117.2 Second, while Ramsey pricing has strong efficiency properties in a monopoly where price discrimination increases output according to the demand elasticities of different customer segments, the same properties do not necessarily apply in oligopolistic markets, where competing suppliers market multiple offers and achieve different margins on the different products they sell. This is often also the case in competitive markets, where suppliers sell bundles of products whose margins differ significantly and where some products are sold as 'loss leaders' by all suppliers. It is therefore possible that consistent with the view of many market analysts, the current retail prices for mobile data are too low given the network costs these services cause and MCPs will likely increase retail prices and/or introduce "fair usage" policies in the near-to medium-term to increase margins for stand-alone retail data subscriptions.

7.117.3 Third, it would likely be controversial and very complicated (and we consider impractical) to compute the (wholesale) demand elasticities for the different products and services using the network of the hypothetical efficient operator (e.g., voice termination, voice origination, data sold in different packages, SMS, MMS etc). Moreover, the assessment would change significantly over time as new packages (including bundles of different retail services) were sold.

7.117.4 Fourth, even if we disregard the above concerns, there are very significant implementation and conceptual issues to address. For instance, how should retail revenues be allocated for bundles of voice and data services on smartphones? How should the revenues for corporate contracts be allocated between voice and data services?

7.118 Pure LRIC is an avoidable costs standard which calculates the costs that could be avoided by the operator by no longer providing termination services to other CPs. In practical terms, because of the difference in the recovery of common costs, in our model using LRIC+ leads to higher MTRs than using pure LRIC (1.5ppm in 2014/15 instead of 0.5ppm when using pure LRIC, all in real 2008/09 prices).

Economic efficiency

7.119 Overall, we believe that neither approach provides the perfect solution, and therefore the choice between the two is marginal.

7.120 It is difficult to choose between the two in terms of allocative efficiency. The key question is whether it is more efficient to recover common costs from a linear mark-up on MTRs or from retail services where MCPs have more pricing flexibility. The

historical evidence points to the MCPs' ability to engage in extensive price discrimination at the retail level. On the other hand, simple Ramsey pricing principles suggest that more common costs should be allocated to the less elastic services, so it might be appropriate to allocate some common costs to wholesale termination.

7.121 In terms of dynamic efficiency, we do not believe there is much difference between the two approaches. Although in principle pure LRIC carries a greater risk of setting MTRs too low, this is likely to be countered by the waterbed effect (although we accept that this may be incomplete).

Competitive Impacts

7.122 On the other hand, we believe that a switch to pure LRIC for MTRs would ease, potential concerns about competition between MCPs and fixed operators stemming from SMP in MCT. For example, concerns have been expressed about the impact that high MTRs may have on competition between fixed and mobile networks, as they act as a transfer of resources from the fixed to the mobile sector. Such concerns may be somewhat limited at present because we believe that, at a retail level, the two services are not very close substitutes. On the other hand, there is likely to be increasing convergence in the future, and the adoption of pure LRIC would significantly reduce these concerns.

7.123 Finally, a move to pure LRIC would also reduce significantly any present or future concerns about on-net/off-net price discrimination by MCPs.

Distributional impacts

7.124 Overall, we believe that consumers using both fixed and mobile services are likely to benefit from lower MTRs (and/or a switch to pure LRIC) from a static efficiency point of view. Under 'distributional impacts', we examine distributional concerns from an equity point of view – i.e. are vulnerable consumers likely to be negatively affected? This question is discussed in annex 13. Our main conclusions are summarised below.

7.125 Respondents have claimed that a reduction in MTRs to low levels, as implied by pure LRIC (but also those estimated under LRIC+) will have two distributional impacts:

- a substantial drop in mobile take-up; and
- low-usage mobile subscribers losing out and, in some cases, even heavy users losing out.

7.126 On the basis of the available evidence, we do not share these concerns. We believe that the impact on mobile ownership is unlikely to be material (although subscriptions may decline) for a number of reasons, discussed in detail in annex 13.

7.127 On usage, fixed users are likely to be better off if MTRs are lower. For mobile users two forces are at play. First, MCPs will receive less from fixed callers, which will make mobile users potentially worse off, as MCPs will have lower profits to subsidise other mobile services via the waterbed effect. Second, we believe that lower MTRs (or a switch to pure LRIC) would provide benefits to mobile consumers, stimulating their consumption of calls. Nonetheless, it is likely that on average mobile-only users would lose out from lower MTRs.

7.128 There will be winners and losers, but the losers will not necessarily be the low-usage customers that some stakeholders claim will be negatively affected. The cost will be borne primarily by those who are less sensitive to the price of calls and who do not take advantage of lower call charges to expand their consumption. These are not necessarily low users.

7.129 Vulnerable consumers are equally concentrated among fixed-only subscribers, who are likely to gain from lower MTRs (and a shift to 'pure LRIC') and mobile-only consumers, for whom it is unclear whether they will gain or lose, but are likely to lose on average.

Commercial and regulatory consequences

7.130 Although we are conscious of the regulatory burden of imposing cost-based charge controls in general, and MTRs in particular, we do not believe the commercial and regulatory consequences to be significantly different between the LRIC+ and pure LRIC approaches.

Conclusion

7.131 From an economic point of view, the choice between calculating a charge control based on a LRIC+ or a pure LRIC basis is finely balanced.

7.132 On the basis of the analysis undertaken (including that set out in annexes 12 and 13, the choice between the two approaches is finely balanced. Respondents were also divided as to which approach should be adopted.

7.133 In its response, O2 noted that adopting a pure LRIC approach (consistent with the EC Recommendation) for MTRs would be inconsistent with the approach (of LRIC+) adopted in relation to fixed termination rates. We recognise that, at least for the period from the start of the new MCT control to the expiry of the current FCT control, (to 30 September 2013) the approaches would differ.

7.134 As outlined in paragraphs 7.99 to 7.101 and 7.108 above, we are required to take account of the EC Recommendation. This, together with our analysis of the relative merits of LRIC+ and pure LRIC, leads us to the conclusion that it is appropriate to apply a charge control, based on a pure LRIC approach for the 4 national MCPs. Moreover, as discussed in section 9, we propose to adopt a glide path to bring MTRs down to the pure LRIC level by 2014/15. This means that during the first two years of the MCT control, (when FTRs are set still using LRIC+) MTRs will also be substantially above the pure LRIC level, and the differences in approach would be significantly less likely to materially affect competition. From 2013 it is highly likely that, for reasoning similar to that set out herein, FTRs will also be set using pure LRIC.

Ofcom's preferred option for remedies and proposed SMP conditions

7.135 For the reasons set out in more detail in this section, our preferred option is (in terms of the options noted in paragraph 7.3) to apply option 2 to all MCPs found to have SMP in the MCT market and to apply option 4 to the four national MCPs.

7.136 We therefore propose the following set of conditions, to be applied to all MCPs found to possess SMP in the MCT market:

- A condition to meet reasonable requests on fair and reasonable terms and conditions (including charges) for mobile voice call termination (SMP condition M1).

- A condition requiring publication of charges, and provision of 28 days prior notification to interconnected parties of any changes to those charges taking effect (with prior notification to Ofcom five days before that) (condition M4).

7.137 In addition, the four national mobile network operators have the following conditions:

- A prohibition on undue discrimination (condition M2)

- A charge control condition for mobile voice call termination charges (for both fixed-to-mobile and mobile-to-mobile calls) based on a glide-path to pure LRIC in March 2015 (condition M3).

7.138 We believe that these proposed conditions meet the relevant legal tests for remedies, as set out in section 6.

7.139 We attach at annex 7 the Notification proposing these conditions.

7.140 In Sections 7 and 9, we explain the rationale for imposing each of the conditions, and the need to impose each of the conditions to realise the benefits of regulation. Below we set out the legal tests which underpin each of the conditions.

Question 7.5 – do you agree with Ofcom's proposals for its preferred set of remedies for the provision of MCT services?

Legal tests

7.141 Section 87(1) of the Act provides that, where Ofcom has made a determination that a person has SMP in the market reviewed, it must set such SMP conditions as it considers appropriate and as are authorised in the Act. This implements Article 8 of the Access Directive.

7.142 Section 46 of the Act provides that a person to whom an SMP services condition is applied must be a 'communications provider' or a 'person' who makes associated facilities available and a 'person' whom Ofcom has determined to have SMP in a specific market for electronic communications networks, electronic communications services or associated facilities.

7.143 Article 16 of the Framework Directive requires that, where a national regulatory authority determines that a relevant market is not effectively competitive, it shall identify "undertakings" with SMP on that market and impose appropriate specific regulatory obligations. For the purposes of EC competition law, "undertaking" includes companies within the same corporate group (*Viho v Commission* Case C79 73/95 P [1996] ECR I-5447), for example, where a company within that group is not independent in its decision making.

7.144 We consider it appropriate to prevent a dominant provider to whom a SMP service condition is applied, which is part of a group of companies, exploiting the principle of corporate separation. The dominant provider should not use another member of its group to carry out activities or to fail to comply with a condition, which would otherwise render the dominant provider in breach of its obligations. For this reason,

we propose that these conditions should apply to the four national MCPs – that is: O2 (UK) Ltd, to the JV (arising from the merger of Orange Personal Communications Services Ltd and T-Mobile (UK) Ltd), Vodafone Ltd, and Hutchison 3G UK Ltd, and any O2, Orange/T-Mobile, Vodafone, or H3G subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006. In addition, those other MCPs, and any subsidiary or holding company, or any subsidiary of that holding company, all as defined in section 1159 of the Companies Act 2006, listed in the table included at schedule 1of annex 7.

7.145 The Act (sections 45-50 and 87-92) sets out the regulatory obligations that we can impose if we find that any undertaking has SMP. Sections 87 to 92 implement Articles 9 to 13 of the Access Directive and Articles 17 to 19 of the Universal Service Directive. The potential regulatory obligations relevant to this review are:

- the provision of network access;
- no undue discrimination;
- transparency; and
- price control.

7.146 Recital 27 of the Framework Directive provides that ex ante regulation should only be imposed where competition is not effective and where competition law remedies are not sufficient to address the problem. In order to provide a full analysis, we have, therefore, considered the option of no ex ante regulation (see section 6, in particular paragraphs 6.20 – 6.37, and whether it would be sufficient to rely on competition law alone.

7.147 Section 4 of the Act imposes a duty on Ofcom, in carrying out its functions, to act in accordance with the six Community requirements set out in that section. This implements Article 8 of the Framework Directive. In considering for the purposes of this market review whether to impose any SMP conditions, we have considered all of these requirements. In particular, it has considered the requirement to promote competition in relation to the provision of electronic communications networks and electronic communications services. Ofcom has also considered the requirement to encourage network access and service interoperability for the purposes, inter alia, of securing efficient and sustainable competition in the markets for electronic communications networks and services, and for securing maximum benefits for customers of communications providers.

7.148 As being appropriate (section 87(1)), each SMP condition must also satisfy the tests set out in section 47 of the Act, namely that each condition must be:

- objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;
- not such as to discriminate unduly against particular persons or against a particular description of persons;
- proportionate to what the condition is intended to achieve; and
- in relation to what it is intended to achieve, transparent.

7.149 There are also additional matters to consider in respect of network access conditions, set out in section 87(4) of the Act, including the feasibility of the provision of the network access, and additional requirements for network access pricing conditions, set out in section 88 of the Act. We think that the conditions set out in annex 7 satisfy the relevant requirements specified in the Act and relevant European Directives. This view is explained in detail in the following paragraphs.

7.150 In the following paragraphs, we set out the aims of each condition and relates these to Ofcom's statutory powers and duties.

Condition M1: Requirement to provide network access on reasonable request

7.151 We consider that condition M1 is appropriate because without it, dominant providers would be free to refuse supply to requesting providers of MCT services. We consider that the terms and conditions of such provision should be fair and reasonable, including the level of charges.

7.152 Condition M1.1 requires MCPs with SMP to meet reasonable requests for network access. As discussed in section 7 (see for example, paragraphs 7.69 – 7.85) above, we consider that this condition should be imposed on all MCPs with SMP. In the absence of condition M1.1, MCPs might refuse to supply MCT (see also sections 3 and 4).

7.153 Condition M1.2 requires that terms and conditions (including charges) should be fair and reasonable. In Ofcom's view it is necessary to impose such a condition requiring the supply of network access on fair and reasonable terms, even in the presence of charge control condition (as applied to the four national MCPs), as (for the reasons set out in this document, including at paragraphs 7.69 – 7.85) we believe MCPs have the ability and incentive to set excessive charges for wholesale voice call termination services.

7.154 In SMP condition M1.3, Ofcom sets out that the charges for calls as covered by the charge control SMP condition M3 (as applied to the four national MCPs), shall be as set out in those conditions rather than as set out in condition M1.1 (fair and reasonable), but only for the duration of those conditions. We have included this condition to ensure that the four national MCPs have certainty as to the appropriate call termination charges i.e. that the only rules regarding the level of charges are contained in condition M3 for their duration. Condition M1.4 requires the dominant provider to comply with any direction that Ofcom may make from time to time under this SMP condition.

7.155 Section 87(3) of the Act authorises the setting of SMP services conditions requiring the dominant provider to provide network access, as Ofcom may from time to time direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to and for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions. When considering the imposition of such conditions in a particular case, Ofcom must have regard to the 6 factors set out in section 87(4) of the Act, including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access. As explained in paragraph 7.11 we remain of the view that it is not consider technically or economically feasible to install competing facilities. However, given MCPs are currently providing network access, Ofcom considers that provision of network access remains feasible.

7.156 Section 87(9)(a) of the Act authorises the setting of an SMP services condition imposing charge controls in relation to matters connected with the provision of network access.

7.157 Section 88(1) of the Act authorises the setting of an SMP condition falling within section 87(9) where there is a relevant risk of adverse effects arising from price distortion (as discussed in section 5, see in particular paragraphs 5.31 – 5.33 and 5.41 – 5.45); and it also appears that the setting of the condition is appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on the end-users of public electronic communications services. As discussed above in section 5 (in particular paragraphs 5.19 – 5.46), it appears from the market analysis that there is a relevant risk of adverse effects arising from price distortion. As required by section 88(1)(b) of the Act, Ofcom considers that this obligation therefore promotes efficiency, confers the greatest possible benefits on the end-users and, by ensuring that providers competing for customers in the retail market are not exploited by MCPs setting unreasonable conditions in the wholesale market, promotes effective and sustainable competition. The fair and reasonable obligation takes into account the costs and reasonable rates of return on investments required by MCPs in providing wholesale MCT services. As such, the fair and reasonable obligation takes account of the extent of any investment in the matters to which the condition relates to MCPs, as required by section 88(2) of the Act.

7.158 In imposing this obligation, we have considered the Community requirements set out in section 4 of the Act, in particular the requirements to promote competition, secure efficient and sustainable competition and secure the maximum benefit for retail consumers. Furthermore, we have considered our duties under section 3 of the Act, in particular the requirements to further the interests of citizens and to promote competition. In particular, an access obligation ensures that other providers are able to complete calls to subscribers of the MCPs in question under fair and reasonable terms. By ensuring that competing providers are therefore not disadvantaged through the application of unfair or unreasonable terms, the requirement promotes competition, ultimately furthers the interests of consumers and citizens, and helps to secure effective and sustainable competition.

7.159 Furthermore, we believe that this condition meets the relevant legal tests set out in Section 47 of the Act in that it is justifiable, non-discriminatory, proportionate and transparent. The condition is objectively justifiable, in that it is aimed at ensuring that call termination services are provided by all MCPs, such that competition develops to the benefit of consumers. It does not unduly discriminate, in that it applies equally to MCPs which, in our view, hold a position of SMP. It is proportionate since it does not require MCPs to provide access if the request is unreasonable, and requires access to be provided only to other providers. It is transparent, in that the condition has been drafted to secure maximum transparency, which is aided by the explanation as to the intended operation and effect of the conditions, as set out in this document.

7.160 In imposing this condition, we have taken into account all the factors listed in section 87(4) of the Act, in particular the feasibility of the provision of the network access and the need to secure effective competition in the long term – we believe that it is feasible for all MCPs to provide such network access and that the proposal will help to secure effective competition in the long term.

Condition M2: Requirement not to unduly discriminate

7.161 Condition M2 would prohibit the four national MNOs with SMP from unduly discriminating in respect of the supply of MCT. For the reasons set out in section 7 (see for example paragraphs 7.86 – 7.88 above) we consider that it is appropriate that a condition not to unduly discriminate be imposed on the four national MCPs with SMP.

7.162 Section 87(6)(a) of the Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of network access.

7.163 As discussed in section 7 above (for example at paragraphs 7.87 – 7.91) the requirement not to unduly discriminate is intended, principally, to prevent national MCPs from discriminating horizontally against other providers, but this does not exclude other forms of discrimination. We have considered, but rejected at this point, the option of proposing to impose this obligation on all MCPs.

7.164 We considered how it might treat undue discrimination in its Guidelines[167] *Undue discrimination by SMP providers* published on 15 November 2005.

7.165 In imposing this obligation, we have considered all the Community requirements set out in section 4 of the Act, in particular the requirements to promote competition, secure efficient and sustainable competition and secure the maximum benefit for retail consumers. Furthermore, we have considered our duties under section 3 of the Act, in particular the requirements to further the interests of citizens and to promote competition. In particular, an obligation not to unduly discriminate ensures that other providers are not unfairly disadvantaged in the provision of access to voice call termination services by the MCPs in question. By ensuring that competing providers are not discriminated against so as to materially affect their ability to compete, the requirement therefore promotes competition, furthers the interests of consumers and citizens, and helps to secure effective and sustainable competition.

7.166 This condition meets the relevant legal tests set out in Section 47 of the Act in that it is justifiable, non-discriminatory, proportionate and transparent. The condition is objectively justifiable, in that it provides safeguards to ensure that competing communications providers, and hence consumers (who would gain the benefits of competition), are not disadvantaged by an MCP unduly discriminating between them. It does not discriminate unduly against any MCP in that they apply to all MCPs who, in our view, have sufficient size and scale to unduly discriminate in the provision of call termination. It is proportionate in that discrimination is only prohibited if it is 'undue' and is the least onerous to achieve the aim of prevention of undue discrimination. It is transparent, in that it has been drafted so as to secure maximum transparency, which is aided by the explanation as to the intended operation and effect of the conditions as set out in this document.

Condition M3 - Control of fixed-to-mobile and mobile-to-mobile MCT Call charges

7.167 For the reasons set out in Section 7 (for example at paragraphs 7.90 – 7.93), condition M3 would only apply to the four national MCPs. Its purpose is to control the average charge which any of these MCPs may set in respect of MCT. Such charges include calls originated on both fixed and mobile networks.

[167] http://www.ofcom.org.uk/consult/condocs/undsmp/contraventions/contraventions4.pdf

7.168 We propose, for the reasons set out in section 9 (for example see paragraphs 9.13 – 9.26) above, that charge controls should imposed for a period of four years from 1 April 2011. Condition M3.1 requires the dominant MCP to ensure that, during any relevant year the average call termination charge will not exceed the maximum average charge. Condition M3.2 sets out how the average call termination charge is calculated for fixed-to-mobile calls (condition M3.2A) and mobile-to mobile calls (condition M3.2B) in the base year. Condition M 3.3 calculates the average call termination charge for part years in respect of fixed-to-mobile and mobile-to-mobile calls.

7.169 For the reasons set out in section 9 above (for example paragraphs 9.90 – 9.104), we propose that the maximum average charges (as defined in the SMP conditions) of the 4 national MCPs during the fourth year of the charge control period, should be 0.5 pence per minute (2008/9 prices).

7.170 We set out the average call termination charge applicable to each national MCP by reference to glide paths (see for example paragraphs 9.86 – 9.91 and 9.95 – 9.98). We also propose that charges should be reduced based on a constant percentage change from the current headline regulated charges to 0.5ppm (2008/9 prices) in the final year of the control.

7.171 In the case of H3G, which by the end of the current charge control on 31 March 2011 will have a MCT rate of 0.4ppm above that which applies to the other 3 national MCPs, we propose to remove this difference by applying a steeper glide path in the first year of the control (see for example paragraphs 9.92 – 9.94 for the reasons for this proposal).

7.172 These maximum average charges are to be calcuated based on the call termination charges made by the relevant provider (as those charges are defined in the SMP condition).[168]

7.173 Condition M3.4 restricts the frequency and level of changes to call termination charges. Condition M3.5 sets out the maximum average charge for each year of the charge control period. As set out in section 9 (see in particular paragraphs 9.99 – 9.115 and 9.147 – 9.151) We propose to restrict price-setting to close a loophole that existed in the previous charge control which allowed regulated providers the opportunity to extract extra revenue (that is revenue in addition to that considered the maximum permissible to address their position of SMP) from the charge control. These conditions are targeted at achieving this outcome. Condition M3.6 identifies calls for which the dominant provider should not make any call termination charge.

7.174 Conditions M3.7 and M3.8 set out how adjustments to call termination charges may be applied if the average call termination charge differs from the maximum average charge in any of the years for which the call termination charge is under control.

7.175 Condition M3.9 sets out information that the dominant provider shall provide to Ofcom necessary for monitoring compliance with this SMP condition. This is intended to ensure MCPs provide the data necessary for them to demonstrate compliance with the charge control. The reason for inserting this condition is that in the 2007 charge control we have had some instances where MCPs have not held all of the relevant

[168] The previous charge control excluded 'discounts' from the regulated charge calculation. We do not consider this to be a meaningful distinction to make in the current proposals. We are not aware of significant discounting or variations in pricing between call termination customers (and, in light of our comments on undue discrimination, we would not expect to do so).

information needed to demonstrate compliance. We consider the Condition to be proportionate because we consider that the market definition and our guidance on the call types which are included and excluded from the charge control is more in line with how the national MCPs already treat and charge for the majority of calls (i.e. the common pricing constraint these calls face). Therefore we do not consider that as a result of this SMP Condition the MCPs will be required to make any significant changes to the way in which they currently collect data and therefore there will be little to no extra cost to them. We consider that the benefit of being able to effectively demonstrate compliance, in particular concerning the types of calls included and excluded, outweighs the costs to MCPs of gathering the information.

7.176 Condition M3.10 requires the dominant provider to comply with any direction that Ofcom may make from time to time under this SMP condition.

7.177 Section 87(9)(a) of the Act authorises the setting of an SMP services condition imposing charge controls in relation to matters connected with the provision of network access.

7.178 Section 88(1) of the Act authorises the setting of an SMP condition falling within section 87(9) where there is a relevant risk of adverse effects arising from price distortion; and it also appears that the setting of the condition is appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on the end-users of public electronic communications services.

7.179 In imposing these obligations, we have considered the Community requirements set out in section 4 of the Act, in particular the requirements to promote competition, secure efficient and sustainable competition and secure the maximum benefit for retail consumers.

7.180 We have also considered our duties under section 3 of the Act, in particular the requirements to further the interests of citizens and consumers to promote competition. These obligations will further citizens' interests by addressing the detrimental impacts of unregulated termination charges (namely excessive prices overall, an inefficient structure of prices, distortion of consumer choice, inequitable distributional effects and a risk of anticompetitive behaviour; these impacts are discussed in section 5, and annex 13 to this consultation document). These obligations will promote competition by ensuring that providers competing for customers in the retail market are not exploited by the four national MCPs setting excessive prices in the wholesale market and thus promotes effective and sustainable retail competition. Similarly, by addressing distortions to consumers' choice of whether to make a fixed or mobile call these obligations facilitate undistorted competition between fixed and mobile operators.

7.181 We have performed our duties also by ensuring that, for the purposes of imposing a charge control, the tests set out in section 88(1) of the Act have been met. As discussed above in Section 5 (for example at paragraphs 5.19 – 5.46), it appears from the market analysis that there is a relevant risk of adverse effects arising from price distortion. In particular, Ofcom considers that there is relevant risk of adverse effects arising from price distortion as the four national MCPs might so fix or maintain some or all of their prices at an excessively high level as to have adverse consequences for end-users of mobile call termination services.

7.182 The charge controls are also designed to reflect considerations of economic efficiency and have the intention to maximise benefits to end-users. As required by

section 88(1)(b) of the Act, this obligation therefore promotes efficiency, confers the greatest possible benefits on the end-users and, by ensuring that providers competing for customers in the retail market are not exploited by the four national MCPs setting excessive prices in the wholesale market, promotes effective and sustainable retail competition. The charge controls also ensure that other providers are not unfairly disadvantaged in the provision of access to voice call termination services by the MCPs in question. Furthermore, as set out in annex 8, the charge controls have taken account of the costs and reasonable rates of return on investments required by the four MCPs in providing wholesale voice call termination. As such, the charge controls take account of the extent of the investment in the matters to which the condition relates of the four MCPs, as required by section 88(2) of the Act.

7.183 This condition meets the relevant legal tests set out in Section 47 of the Act in that they are justifiable, non-discriminatory, proportionate and transparent. The conditions are objectively justifiable, in that they provide safeguards to ensure that competing providers and consumers are not disadvantaged by any of the four national MCPs setting excessive charges for wholesale voice call termination services. They do not discriminate unduly against any single national MCP, in that they apply to all national MCPs which, in our view, have sufficient size and scale in the retail market so that they would cause significant consumer detriment if they were to set excessive charges for wholesale voice call termination services. They do not unduly discriminate against the national MCPs, as charge controls on these providers are already in place, and charge-controlling all MCPs, including those not previously designated as having SMP, would be disproportionate. They are proportionate, in that the charge controls are the least onerous obligations, in our view, that address effectively the concerns set out above. Further, in the absence of such a control, there would be serious risk of adverse effects arising from excessive termination charges (namely excessive prices overall, an inefficient structure of prices, distortion of consumer choice, inequitable distributional effects and a risk of anticompetitive behaviour); these impacts are discussed further in sections 5 and 7.They are transparent, in that they have been drafted so as to secure maximum transparency, which is aided by the explanation as to the intended operation and effect of the conditions, as set out in this document.

Condition M4: Requirement to publish and notify charges

7.184 Condition M4 requires all MCPs with SMP to publish charges. Charge changes are to be published not less than 28 days before any such amendment comes into force. For the reasons set out in section 7 (see in particular paragraphs 7.62 – 7.68), Ofcom considers it necessary to propose such a condition.

7.185 Section 87(6)(b) of the Act authorises the setting of SMP conditions which require a dominant provider to publish, in such manner as Ofcom may direct, all such information for the purpose of securing transparency.

7.186 In imposing this obligation, we have considered the Community requirements set out in section 4 of the Act, in particular the requirements to promote competition, secure efficient and sustainable competition and secure the maximum benefit for retail consumers. We have considered our duties under section 3 of the Act, in particular the requirements to further the interests of citizens and to promote competition. In particular, this transparency provides certainty to providers and, by increasing transparency to stakeholders, facilitates compliance monitoring. It thus complements

the other obligations such as the obligation to provide network access on fair and reasonable terms.

7.187 Furthermore, we believe that this condition meets the relevant legal tests set out in section 47 of the Act in that it is justifiable, non-discriminatory, proportionate and transparent. The condition is objectively justifiable, in that it ensures that charges are published, and this will increase transparency to stakeholders and thus facilitate compliance. It does not unduly discriminate in that it applies equally to all MCPs which have the ability and incentive to discriminate. It is proportionate as it is the least onerous obligation to address the concerns described above and to facilitate compliance with regulatory obligations without raising issues of commercial confidentiality. It is transparent, in that it has been drafted so as to secure maximum transparency possible within the confines of commercial confidentiality and network security, which is aided by the explanation as to the intended operation and effect of the condition, as set out in this document.

7.188 Part 2 of Schedule 2 in annex 7 to this consultation includes the Notification imposing these conditions.

Section 8

Proposals for regulating MCPs not previously regulated

8.1 The purpose of this section is to provide a brief explanation of how the remedies proposed in this consultation apply to MCPs that were previously unregulated. As such it provides a brief summary of each step in the market review process.

8.2 We believe that this may be helpful to the numerous smaller mobile communication providers who were not previously regulated, and who may not have the same regulatory knowledge or resources as MCPs that have been previously regulated.

8.3 Therefore this section will be of less relevance to stakeholders that have been previously subject to regulation, or who have a good understanding of how wholesale mobile voice call termination (MCT) has been regulated in the past. This section also focuses only on the regulatory proposals that would apply to smaller MCPs i.e. not the proposals for the 4 larger MCPs.[169]

Market reviews

8.4 Ofcom, as the national regulatory authority (NRA) with responsibility for telecommunications in the UK is required to undertake periodic reviews of the markets that it regulates in order to ensure that regulation remains appropriate. The typical period between reviews is four years, though this may vary between different markets.

8.5 The market for MCT is a market listed by the European Commission[170] (EC) as a market susceptible to *ex ante* regulation. As such, the MCT market has been reviewed on several previous occasions[171].

8.6 The market was last reviewed in 2007, with a conclusion that all five (now four, following the T-Mobile/Orange merger) MCPs operating at that time should be regulated. The period of the current regulatory controls will expire in March 2011, and therefore a further review is now necessary.

8.7 A market review generally consists of three steps:

- defining the relevant market;
- assessing the existence and extent of any market power in that market; and
- applying regulatory remedies to address the existence of any significant market power.

8.8 The remainder of this section considers each of these steps, and how the views and proposals set out in this consultation are likely to affect smaller MCPs.

[169] Vodafone, O2, H3G and T-Mobile/Orange
[170] See ec.europa.eu/informstion.society/policy/ecom/doc/library/proposals/rec_market_en.pdf
[171] Previous reviews, and associated documents, including appeals and competition cases, are available from our website: www.ofcom.org.uk

Market definition

8.9 Market definition is a tool that NRAs (and competition authorities) use to determine the boundaries of a relevant economic market. Typically, a market is defined with reference to the products and/or services being provided and the geographic area in which they are sold. For example, in this consultation we have identified a number of separate markets for wholesale mobile voice call termination services. Each of these individual 'proposed markets' with respect to each mobile communications provider, comprises:

"termination services that are provided by [named mobile communications provider] (MCP) to another communications provider, for the termination of voice calls to UK mobile numbers that MCP has been allocated by Ofcom in the area served by MCP and for which MCP is able to set the termination rate".

8.10 The consequence of this definition is that all MCPs that provide MCT services in the UK are now considered to fall within the boundaries of the relevant economic markets (in effect, each MCP represents a single economic market for MCT).

8.11 Our 2007 market review defined the market more narrowly, concluding that only the five national MCPs were within the relevant market.[172] However, we believe that there are several reasons to justify extending the market definition for the period of this review.

8.12 Section 3 of this consultation provides more detail on the how we arrived at our conclusion for market definition in this review. In particular, it sets out why we believe that the market for MCT extends to more providers than was previously the case.

8.13 Having defined the relevant markets (in effect a relevant market for each MCP), we are then able to assess whether individual MCPs have significant market power.

Significant market power (SMP)

8.14 An assessment of significant market power seeks to identify whether any player within a specified economic market is able to act independently of its competitors or consumers. Put simply, whether the provider is able to significantly raise prices without fear of its consumers or competitors reacting in such a way so as to make those rises unprofitable.

8.15 Section 4 of this consultation sets out the detailed economic arguments for why we believe that each MCP has SMP in the supply of MCT services to its number range.

8.16 The presence of SMP is likely to lead to consumer harm, for example through high prices. As such following a finding of SMP in a relevant market, NRAs are required to consider what remedies should be applied to address the presence of SMP in a particular market.

Remedies

8.17 There are a wide range of remedies available to NRAs to address a finding of SMP. These range from simple transparency measures, such as requiring providers to publish prices, to more complex measures to control the level of charges a provider can set for a particular service.

[172] See: http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf

8.18 The full range of remedies, and guidance on how NRAs should seek to apply remedies to a particular market, are set out by the EC. The EC Framework lists five broad directives for NRAs to follow in selecting remedies.[173] The EC has also published a Recommendation in respect of voice call termination, setting out how it considers NRAs should regulate voice call termination services for both fixed and mobile providers. Of particular relevance to this discussion is the EC Recommendation for symmetric MTRs for termination providers (see paragraphs 7.93 to 7.107 in Section 7 for a fuller explanation of the EC Recommendation on voice call termination).

Proposals for remedies on MCPs (excluding the four national MCPs)

8.19 Ofcom considers that some form of regulatory control on MCPs providing MCT services is required. We believe that in the absence of regulation, MCPs will have both the ability and incentive to set high termination charges. This is consistent with the evidence on the MTRs currently charged by unregulated MCPs, summarised in section 3. This will lead to consumer harm, through, for example, higher retail prices. Section 5 sets out in more detail the detriments that we believe are likely to arise in the absence of any regulatory controls. Section 6 describes further why we believe deregulation is not a viable option at the present time.

8.20 As such, we believe that some form of regulation on all MCPs is needed. Section 7 considers a number of different options for regulation. In summary, we believe that applying transparency requirements, including a requirement to notify changes in termination charges 28 days prior to those changes taking effect, alongside a requirement to provide MCT services on fair and reasonable terms, should be sufficient to address the position of SMP held by non-national MCPs.

8.21 We do not consider it appropriate to set charge controls on all MCPs providing MCT services. We believe that to apply such stringent controls, on previously unregulated MCPs, would be disproportionate. Applying a charge control on smaller, newer MCPs would place a more significant regulatory burden on these smaller MCPs.

8.22 However, we recognise the need to ensure that the right balance is struck between regulatory certainty (over the level of MCT charges) and commercial flexibility. We are also mindful of the requirements set out in the EC's Recommendation on voice call termination, which recommends that all MCT charges are symmetrical.

8.23 Therefore, while we are not proposing to set charge controls for all MCPs at the present time (although this may be an approach adopted in future reviews), we want to highlight that, as a starting point, we would expect 'fair and reasonable' MCT charges to be at the same level as those set for the four national MCPs which are subject to a charge control (set on the basis of an efficient national MCP). As described in section 7 (see paragraphs 7.75 – 7.79, we think that there are significant benefits to a regime of symmetric MTRs. See also section 9 for more information on how the charge control on the four national MCPs is calculated and applied).

8.24 In practice this means that, were we to receive a request to resolve a dispute over MCT charges set by a MCP listed in annex 7, we would expect those charges to be fair and reasonable, and in the absence of any evidence to show why they should be different, we would expect them to be set at the same level as applies to the four national MCPs. In the event that the MCP believes that its MCT charges should differ from those of the four national MCPs, we would expect it to provide sufficient

[173] See: http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/index_en.htm#reg

justification that its charges were fair and reasonable, possibly including, among other things, sufficient cost information as may be necessary for an assessment.

8.25 In most cases, therefore, we believe that MCT charges would be set consistent with the levels set out in section 9 of this consultation. However, where appropriate, and objectively justified, MCT charges may vary.

8.26 Our proposal for regulation on non-national MCPs is therefore to impose the following conditions on all providers listed in Schedule 1 of annex 7:

- A condition to meet reasonable requests for mobile voice call termination on fair and reasonable terms (SMP condition M1). Guidance on how we propose to apply this obligation is set out in section 7 (paragraph 7.69 onwards).

- A condition requiring publication of charges, and provision of 28 days prior notification to interconnected parties and to Ofcom of any changes to those charges taking effect (SMP condition M4).

8.27 Annex 1 to this consultation explains how stakeholders should respond to the proposals set out in this consultation. In particular, MCPs should respond if they believe for any reason that they should not be regulated.

Section 9

Assessing what is an appropriate charge control

Section summary

9.1 Section 7 set out our view that a charge control was necessary, and proportionate, to address significant market power in the Proposed Markets for the four national MCPs that we have identified, in which each of the four national MCPs provide mobile call termination. This section considers in more detail the design of those charge controls.

9.2 We model the costs of a hypothetical MCP, in a way that allows us to calculate a forward-looking economic cost for MCT that is independent of any particular provider or type of mobile communications technology. In the previous market review of mobile cal termination, we used separate versions of our cost model for the 2G/3G MCPs and 3G-only MCP. With more diverse technologies in prospect, and a more diverse pool of players vying for retail market share, we think that a technology-neutral approach fits with the regulatory framework and our duties.

9.3 Taking an updated version of 2007 MCT model as a starting point, we have calculated efficient levels of unit costs for mobile voice termination for the period until 2014/15. We set out in this section a description of the new Ofcom cost model and the drivers and assumptions underpinning it. A more detailed description of the model can be found in annex 8 and the model itself is available website. This section will also discuss the range of possible efficient cost estimates and the glide-path that we propose to implement.

9.4 As well as setting a maximum average charge, we propose to place certain limits on pricing flexibility in relation to MCT. In previous MCT charge controls, we did not restrict the ability of MCPs to change their MCT charges as often as they wished, provided they met the yearly Target Average Charge (TAC).[174] However, we have observed that, exploiting features of the 2007 charge control mechanism, some MCPs change their termination rates frequently in order to extract additional revenue from the charge control. We discuss why this is a problem, and our proposed solution to this problem, in part 3 of this section.

9.5 Finally, we consider the distributional impacts of changing termination rates. We examine how reducing MTRs will affect both the telecommunications industry and consumers of communication services. Our proposed reductions in MTRs are significant, and will affect users of both mobile and fixed telecommunications. We will also consider whether any groups of consumers will be particularly negatively affected, as part of our Equality Impact Assessment.

9.6 This section will be structured as follows:

Part 1: Principles underpinning the charge control

- Form of the charge control

[174] The corresponding concept in the attached section 48 and 80 Notification is “maximum average charge”.

- Duration
- Scope

Part 2: Determining the efficient level of charges

- The four major components of the cost model
    i. Traffic volume forecasts
    ii. Network costs
    iii. 3G spectrum costs
    iv. Non-network costs
- Choice of network technology
- Outputs of the cost model
- Implementing a glide path

Part 3: **Time-of-day flexibility**

- What is the problem with the current charge control?
- Options to resolve the problem
- Our preferred approach to resolve the problem

Part 4: Distributional impacts when mobile termination rates decrease

- The possible effect on mobile retail prices
- The possible effect on mobile and fixed take up
- The possible effect on mobile usage
- The possible effect on vulnerable consumers

Part 1: Principles underpinning the charge control

We propose to apply an RPI-X form of control

9.7 We propose to implement an RPI-X form of charge control, where the X represents the average annual percentage by which MTRs are expected to change in real terms. RPI-X is a well-established way to provide regulated firms with incentives to seek efficiency savings. It also provides a degree of certainty and stability to all industry players (whether providing or purchasing MCT) during the charge control.

9.8 To set an RPI-X control, we have undertaken a detailed cost modelling exercise to forecast relevant volumes, taking account of expected efficiency gains and other factors such as input price changes over the duration of the control period. The maximum permitted average for MTRs is then set so as to bring charges into line with estimated efficient unit costs by the end of the control period.

9.9 RPI-X charge controls were used in the 2007 MCT charge control (and in previous controls), and are well understood. While 'cost plus' controls might fulfil certain objectives, we consider that a RPI-X type control better enhances productive efficiency and is a long-standing convention.[175] On this basis we propose to retain the RPI-X form of control.

We propose to retain RPI as the relevant inflation index

9.10 Using an RPI-X formula allows the charge control to reflect real changes in prices via the inflation term. In previous MCT charge controls, and fixed-line charge controls on BT (such as the charge control imposed on leased lines and the network charge control), we have used RPI as the appropriate measure of inflation.[176]

9.11 We think that RPI remains the most appropriate way to index-link this charge control, rather than other measures of inflation.[177] RPI is familiar to stakeholders as a widely-used measure of general inflation, and its use enhances transparency and consistency. It is often used to set price caps in telecoms and other sectors that are subject to economic regulation. The CC, in its assessment of the economic regulation of Gatwick and Heathrow airports, concluded that:

> "… there is no regulatory precedent in the UK for changing from the RPI index, though most sector regulators have examined the issue at some point. Most sector regulators have concluded that the value of continuing to base controls on RPI is, first, that precedent favours RPI, and secondly that significant cost items of regulated companies, such as index linked bonds which are used to calculate the cost of capital and wage settlements, are generally linked to RPI […]. We therefore see no reason to change the current approach of relating increases in charges to changes in the RPI."[178]

9.12 Therefore, we propose to use RPI in the next MCT charge control.

Timing and duration of the charge control

9.13 RPI-X charge controls are set for a fixed duration so that the regulated firm has certainty that, if it improves its efficiency more significantly than the assumption of efficiency taken when the control is set, it will retain any resulting profits (at least) for the period of the charge control. In markets involving one-way access (such as wholesale access or wholesale broadband), setting the charge control in this way provides dynamic efficiency benefits for SMP providers by providing an incentive to innovate and make efficient investments (specifically, investments that reduce costs over time). In this case, since MCT is a two-way access service, we are less concerned about dynamic incentives then we might otherwise be - the retail market is competitive, so MCPs should have an incentive to cut costs and be efficient in any event, independently of MCT regulation.

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[175] A cost-plus type of control would allow operators to recover their incurred costs plus some mark-up. In our modelling exercise we only allow projected efficient costs to be recovered. This may or may not correspond with the costs actually incurred.

[176] See the Review of BT network charge control at http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/ ; and the Leased Lines Charge Control at http://www.ofcom.org.uk/consult/condocs/llcc/

[177] Alternatives include, for example the consumer price index (CPI) which focuses more than RPI on household consumption of goods, and a measure of inflation which calculates the RPI excluding mortgage interest payments known as the RPIX index.

[178] http://www.competition–commission.org.uk/rep_pub/reports/2007/fulltext/532.pdf (paragraphs 3.21 to 3.22)

9.14 We propose to commence this charge control on 1 April 2011, immediately after the expiry of the current charge control.[179] Given the need to consult and engage with stakeholders beforehand, we consider that this is an appropriate time for review.

9.15 We propose to set the charge control for four years. For past MCT and other charge controls, we have considered that a charge control period of four years provides the right balance between dynamic efficiency incentives, the need for regulatory stability and allocative efficiency benefits (discussed further below).

9.16 We think that a four-year charge control is appropriate in this market review, despite the fact that changes to Article 16(6) of the Framework Directive suggest that NRAs will in future carry out an analysis of markets and notify proposed SMP conditions every *three* years.[180]

9.17 We have also taken into account the fact that we propose to adopt the approach set out in the Commission's 2009 Recommendation. The Recommendation says that termination rates must be implemented at a cost-efficient, symmetric level by 31 December 2012:

> (Article 11) "*This Recommendation is without prejudice to previous regulatory decisions taken by NRAs in respect of the matters raised herein. Notwithstanding this, NRAs should ensure that termination rates are implemented at a cost-efficient, symmetric level by 31 December 2012, subject to any objective cost differences identified in accordance with points (9) and (10).*"

9.18 Ofcom understands this to mean that termination charges would need to be at the efficient cost level by 31 December 2012. If we impose a four-year charge control we would hit this target in the financial year 2014/15. This implies that the review period should extend at least up to that date.

9.19 We are conscious that changing the method for the evaluation of efficient costs under this new charge control approach is significant and it is likely to have cost and investment implications for companies in the market. Given this, and to minimise uncertainty and disruption flowing from falling MTRs, we are keen to establish business and regulatory certainty for a reasonable period into the foreseeable future. This militates in favour of continuing with setting SMP conditions that will apply prospectively for four years from 1 April 2011, rather than reducing that period to three years.

9.20 More specifically, we believe that in this case, and given the proposed reductions in MTRs, a four-year glide path is needed to minimise industry and consumer disruption arising from the significant changes likely to emerge from the adoption of very low MTRs. In recent years we have seen retail contracts of 12 to 24 months becoming more common. We are aware that a reduction in MTRs will cause a rebalancing of price structures at the retail level. While some customer segments (e.g. pre-paid services) may be able to adjust relatively quickly, in relation to customers who pay monthly, given the length of current contracts it will take a significant amount of time for retail prices to adjust to match changes in the underlying wholesale prices. If

[179] Under section 85(2) of the Communications Act 2003 Ofcom must revisit market reviews "at such intervals at it considers appropriate".

[180] When we published this consultation, these changes to the Directive are yet to be transposed into UK law. However, the EU Framework Directive will have to be transposed into national legislation within 18 months of its adoption – that is, by June 2011.
http://ec.europa.eu/information_society/policy/ecomm/tomorrow/index_en.htm

MTRs fall too quickly, this could also lead to providers aggressively adjusting prices on their flexible price plans, leading to an inefficient rebalancing of prices which could be harmful to consumers. Although not directly related to consumer interests, we are also concerned that any lag in pricing could lead to under-recovery of common costs by MCPs if they do not have sufficient time to adjust their price plans.

9.21 Further to this, in previous charge controls we have stated that we believe a reduction of more than 35% in a single year could pose a risk to future investment.[181] Although we believe them to be reasonable and proportionate for the reasons set out in this document (e.g. at paragraph 9.91), the glide path of charges that we are proposing in paragraph 9.86 produce larger annual reductions in MTRs than in previous control periods. A three-year charge control would significantly increase the yearly reductions in MTRs. We also recognise that longer charge controls provide a more stable investment environment for both suppliers and operators. With the expected deployment of LTE, large amounts of upfront capital investment will be required. We believe that commercial certainty during this period is desirable, and as such, a longer charge control is required. Although not a major determining factor, we also recognise that, because we have historically used four-year charge controls, the market will expect us to continue to do so.

9.22 One objection to longer controls is in relation to possible forecast errors. Mobile technologies are constantly evolving; the type of network technology that is in use at the end of a four-year charge control period may look very different to the type of network in operation at the start. The model uses a lifetime network approach, based on the currently available technology, so in one sense, the length of charge control is a moot point. However, a shorter charge control enables us to rebase the model using the most recently available information. If a new technology is rolled out, or volumes of a particular service increase rapidly, a short charge control enables us to adjust the model as appropriate. For example, in responding to the September 2006 consultation, C&W and H3G both argued that, in the presence of material levels of uncertainty about future traffic volumes and unit costs, there is a risk that MCPs will either over- or under-recover their costs. Their recommendations were either a shorter duration control, or that Ofcom should commit to reviewing the appropriateness of prevailing charge controls before they expire.

9.23 The core objective in setting a charge control is to avoid the prospect that MCPs 'over-recover', relative to costs. In setting controls with that objective in mind, while also ensuring that operators do not under-recover, the question is whether the choice of a shorter charge control duration would fundamentally alter particular volume and cost uncertainties that will be faced in the next few years, or the risks of over- or under-recovery.

9.24 We recognise that a lengthy charge control may exacerbate the effects of forecasting or costing errors. The consequent risks must, therefore, be taken into account when determining the appropriate charge level. As set out in more detail below, we have taken into account the identified risk of forecasting errors in this control period by considering a range of traffic scenarios. We have used conservative traffic assumptions, intended to reduce the risk that MCPs will under-recover.

9.25 In addition, we are proposing to adopt an economic depreciation cost model that considers costs over the whole economic life of the network asset, which tends to smooth network costs based on longer-term forecasts of network utilisation. Another

[181] See Mobile Call Termination Statement (2007) paragraph 9.191 http://www.ofcom.org.uk/consult/condocs/mobile_call_term/

source of modelling uncertainty is in relation to the choice of technology used to deliver MCT services and the migration between different technologies. However, as discussed below, we propose to focus on modelling proven technologies, taking the view that new technologies will be deployed only if they are at least as efficient (i.e. allow delivery of existing services at the same or lower costs).[182]

9.26 For all the reasons discussed above, we propose that the SMP conditions should cover the period from 1 April 2011 until 31 March 2015 (i.e. a 4 year control).

9.27 Based on the need for regulatory stability in the context of the steep proposed reductions in MTRs, we consider that the proposed charge control should last until 31 March 2015, resulting in four annual periods:

- 1 April 2011 to 31 March 2012 (2011/12)
- 1 April 2012 to 31 March 2013 (2012/13)
- 1 April 2013 to 31 March 2014 (2013/14)
- 1 April 2014 to 31 March 2015 (2014/15)

9.28 However, we intend to continue to keep these market conditions under review, and we would consider revisiting the proposed remedies if necessary. In keeping with normal regulatory practice, and linked to the need for regulatory certainty, as noted above, we would expect to do this only in exceptional circumstances.

Question 9.1 – Do you agree that a four-year period for the SMP remedies is appropriate?

Scope of the charge control

9.29 In addition to the form and duration of the charge control, we need to consider the precise scope. As discussed in section 3, in this market review we identify Proposed Markets that encompass termination for all call types to a specific mobile number range. This charge control will include all call types that are now captured by our market definition. For an overview of these call types see figure 6 in section 3.

We propose a single technology-neutral charge control basket

9.30 In determining how to calculate the costs of a hypothetical efficient operator, we see two options for implementing a charge control:

- ***separate controls for each call termination technology or platform:*** Set charge controls for each mobile voice call termination service by technology or platform (e.g. a separate charge control basket for services provided on 2G, another separate basket for 3G networks and so on); or
- ***technology and operator neutrality:*** Set a single combined charge control (or controls) covering termination on any mobile network.

[182] Note that an economic depreciation cost model also addresses short-term cost "spikes" when new technologies are introduced as it models the lifetime costs and revenues linked to those assets.

Separate controls for each call termination technology or platform

9.31 This option would set separate controls for 2G, 3G and other forms of mobile voice termination delivered over different platforms.

9.32 The main and most significant objection to this approach is that it fails to achieve an important policy objective, which is that regulation should be, where possible, technology-neutral. Technology-specific regulation carries a number of risks, including being rendered obsolete or ineffective in the face of changes in the market. For this reason, technology neutrality is recognised as having value as a regulatory principle in the European framework and in UK law.[183]

9.33 Another practical drawback in setting separate controls on 2G and 3G networks is that the 2G/3G providers levy a single charge for termination no matter which technology it passes over. Currently, these providers cannot identify, on a call-by-call basis, whether a call is terminating using the 2G or 3G networks (indeed, a call may transfer between these technologies during a call). Therefore, charges for calls terminated on 2G and 3G networks are blended, and charged at a single rate to all purchasers of MCT. Also, technology specific caps are vulnerable to economy of scale effects as traffic migrates from old to new technologies. Indeed technology specific caps could distort efficient incentives for traffic migration.

9.34 Given the practice of blending and the constraints of billing systems that cannot distinguish how a particular call terminates in real time, it is more appropriate to apply a blended charge control based on the expected traffic weights across the networks.

Technology neutrality and operator neutrality

9.35 The option we propose is to define a technology-neutral approach, whereby a single control is applied to MCT irrespective of the technology used, with the MTR capped independently of the technology used to terminate calls. But because we are using a technology-neutral approach, we will not necessarily impose a single cap for all operators. There may be operator-specific differences that make charge differences between operators appropriate. The 2007 MCT charge control used a technology-neutral principle but imposed different target charges for the 2G/3G operators and for H3G.

9.36 Technology neutrality does not imply that the assessment of forward-looking costs can ignore the question of which technologies are available to MCPs. For example, when we model efficient costs, the network cost model needs to make certain assumptions about the technology mix available. A discussion on our choice of efficient ongoing technology can be found from paragraph 9.64 onwards.

9.37 We are also proposing to set an operator-neutral rate. Operator neutrality means that we set the same cap for all charge-controlled MCPs (an outcome termed, in this document and in the EC's Recommendation, as 'symmetry').

[183] The technology neutral principle is discussed in section 4(6) of the Communications Act 2003 http://www.opsi.gov.uk/acts/acts2003/ukpga_20030021_en_2#pt1-pb2-l1g4 and Article 8(1) of the Framework Directive http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/l_10820020424en00330050.pdf

9.38 We believe that a single cap on termination rates benefits consumers. In general, consumers are unaware of, and are likely to be indifferent to, the type of network their calls terminate on and the technology used.[184] With a single cap, the end-user is more likely to face the same charge for what is, from his or her perspective, the same service. Simplified wholesale pricing may also translate (even in the presence of limited direct pass-through) to simplified retail prices for calls to different mobile networks.

9.39 The prospect of removing the limits currently imposed on the use of 2G spectrum (spectrum liberalisation) also strengthens the case for a single price cap for MTRs. A single cap helps ensure that MCPs and other potential traders of spectrum have the appropriate and efficient incentives to trade spectrum, based on undistorted relative valuations of different types, frequencies and quantities of spectrum. In addition to the benefits of spectrum liberalisation, a single price cap has advantages as new and alternative technologies are developed and deployed. By using a single technology-neutral cap, we avoid the ever-increasing and ever-challenging burden of detailed cost analyses in the face of new and uncertain technologies.

9.40 In addition to the arguments in favour of using a single cap, the EC Recommendation also requires that a single efficient cost level should be identified. It states that:

(Article 16) In setting termination rates, any deviation from a single efficient cost level should be based on objective cost differences outside the control of operators.

9.41 An example of an exogenous factor that could cause such a cost difference is uneven spectrum assignments. But where spectrum assignments have been carried out using a market mechanism, or where there is a secondary market in place, frequency-induced cost differences are likely to be significantly reduced or eliminated.

9.42 In summary, we are proposing a single charge control basket covering all MCT services provided in each Proposed Market, irrespective of the technology used to deliver these services.

Part 2: Determining the efficient level of charges

9.43 Part 2 of this section summarises the main assumptions and components of the MCT cost model. A detailed description of the cost model can be found in annex 8. The model itself is available at http://www.ofcom.org.uk/consult/condocs/wmctr/

9.44 The European Commission's 2009 Recommendation supports the use of pure LRIC. We have updated our bottom-up 2007 MCT model to reflect industry developments and new forecasts. We have also updated the model so it can now produce values using both the LRIC+ and pure LRIC cost standards.

9.45 We have constructed a model that assesses the costs faced by a mobile communications provider operating a hypothetical efficient network. This hypothetical efficient network can meet all the traffic volumes that are forecast to pass over it. The new model has the same structure and approach as the 2007 MCT model (and those used in previous reviews), but it has been updated to reflect technological and industry change (a description of these updates can be found in annex 8). The most

[184] See the May 2009 Consultation paragraph 9.63 to 9.68 for a discussion of the adverse impacts of differentiated charge controls. http://www.ofcom.org.uk/consult/condocs/mobile_call_term/

significant change to the model is the ability to calculate termination rates using the pure LRIC approach. The 2007 MCT model had been refined through discussions with the four national MCPs, both during the various Ofcom reviews and during appeal processes involving both the Competition Appeals Tribunal and the Competition Commission.

9.46 As in 2007, in constructing our model we have calculated costs and asset volumes for the lifetime of our hypothetical network. We then apply an economic depreciation algorithm to these network asset costs in order to determine a path of cost recovery. From these yearly network costs we calculate the hypothetical efficient unit cost based on the routing factors for mobile call termination.

Components of the cost model

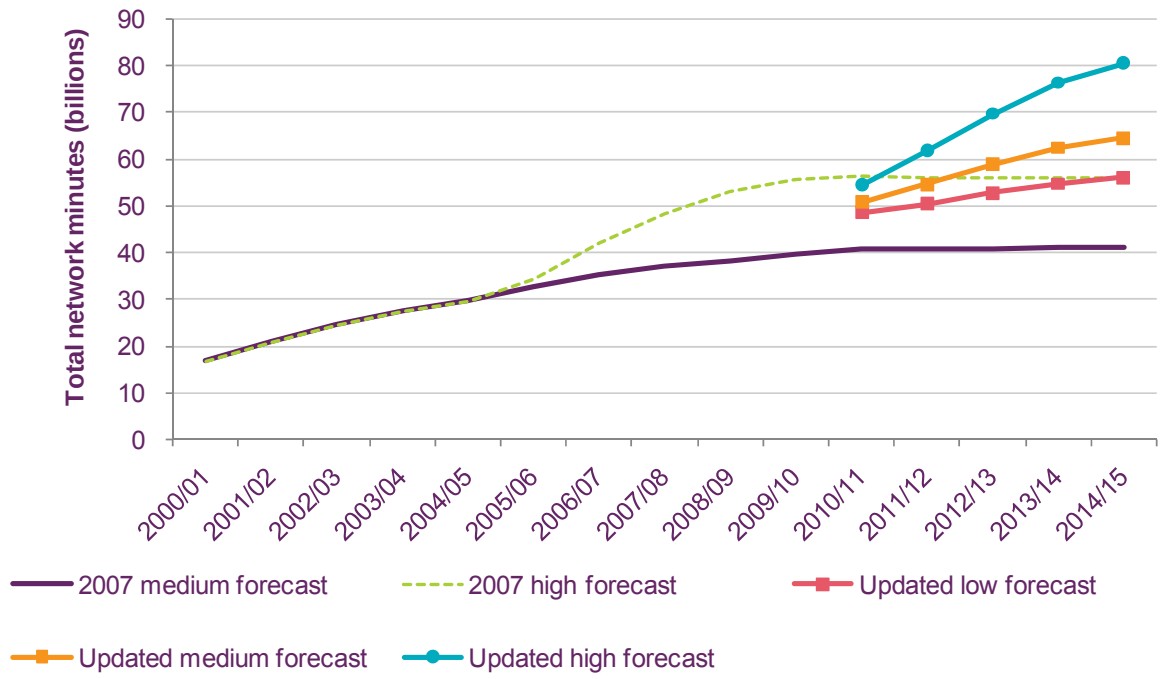
Traffic volume forecasts

9.47 Telecommunication networks are characterised by significant economies of scale: greater volumes of traffic, caused by market growth or increased market share, lead to a smaller proportionate increase in total cost than in total volume. Similarly, in the presence of common costs, these can be recovered from a greater range of outputs and services, other things being equal.

9.48 We have mapped these characteristics onto the market estimates that we have gathered about the 2010/11-2014/15 period. The past four years have seen a period of significant growth in the volume of data traffic over mobile networks. This growth in data traffic has been brought about largely by the growth of smartphones and 3G dongles. Due to the increase in these data volumes, the 2007 MCT cost model under-forecast the actual volumes that were carried over the MCPs' networks. Under LRIC+, these additional volumes would attract some of the common costs that would otherwise go to the cost of call termination. Under pure LRIC, an under-forecast of this type is less important, because the common costs are not included in the unit cost of termination.

9.49 Figure 10 shows our range of forecasts for call minutes passing over our hypothetical efficient network. As it demonstrates, we are now forecasting call minutes to be higher than our medium forecast in the 2007 MCT model, and to become higher than the high forecast in the previous MCT forecasts.

Figure 10 - Range of forecasts for call minutes passing over our hypothetical efficient network



9.50 We consider a range of services that pass over the hypothetical efficient network in order to produce traffic forecasts. The model uses these traffic forecasts to calculate how much network infrastructure would be required. We have created a range of forecasts for the following services:

- 2G incoming, outgoing and on-net voice calls;
- 2G SMS and MMS;
- 2G packet data;
- 3G incoming, outgoing and on-net voice calls;
- 3G SMS and MMS;
- 3G handset packet data; and
- 3G datacard packet data.

9.51 A detailed breakdown of these traffic forecasts and our selected base-case scenario can be found in annex 11.

Network costs

9.52 As in the 2007 MCT model, the new MCT model calculates the network costs (for a hypothetical efficient operator) of delivering voice and data services to an end-user. As well as the traffic volumes (discussed above) the costs of the network are also driven by the number of subscribers and the coverage requirements. However, the

majority of costs are driven by the volume of network traffic.[185] These cost drivers are used to determine the required deployment of the hypothetical efficient network. In the model, the hypothetical efficient network is designed to be able to carry all the traffic volumes that are forecast to pass over it. We have based the costs in our model on information provided to us by the four national MCPs under our formal S135 power.

9.53 The model explicitly calculates the capital and operating costs associated with network equipment, such as:

- Radio network
- Backhaul
- Backbone
- Core network switching equipment and other assets

9.54 The model calculates the volume of traffic that passes over the network during the life of the network, assuming that the operator has achieved the minimum efficient scale. We assume that this minimum efficient scale is a 25% market share. We have assumed a 25% market share because, following the Orange/T-mobile merger, this value will represent an even split of the mobile market between the four national MCPs. This is, of course, a simplification of the true picture, in which we anticipate that a number of new players, using a variety of technologies, may make inroads into the retail markets where today, the national MCPs are by far the most significant players. Nevertheless, this simplification fits the facts reasonably well, and is consistent with regulatory guidance – for example, in the EC recommendation a 20% market share was suggested, although NRAs are permitted to use a different market share where market conditions suggest it would be appropriate.[186] We think that a 25% market share assumption is more appropriate for the UK market, and consistent with the EC recommendation, than a higher or lower share. Using the traffic volume forecasts that we have produced ,the model calculates the hypothetical efficient costs for the whole of the network life.[187]

9.55 The model produces lifetime costs for each element in the hypothetical efficient network. These costs are then combined according to an economic depreciation algorithm. We implement a form of economic depreciation that has been developed by us, known as Original ED. This is the same economic depreciation approach that was used in the 2005 and 2007 MCT modelling exercises and has been well documented and discussed during the appeals of the previous statements.[188] This method matches the cost of equipment to its actual and forecast usage over the long term. Consequently, there is relatively little depreciation in years when utilisation is

[185] In practice costs are also significantly driven by the depth of coverage required and the frequency of the spectrum used. If for instance operators deploy UMTS 900 during the control period (a likely possibility for 900 MHz holders) then may be able to reduce their 3G site numbers. Alternatively UMTS 900 deployment might be used to deepen/broaden their coverage at lower cost than using 2100 MHz. This sub-section takes the spectrum availability as given; we discuss the choice of spectrum frequency and technology later in the section.

[186] See EC Recommendation (2009): http://www.cableeurope.eu/uploads/090507_COM_Recommendation%20TR.pdf

[187] The model explicitly calculates the network costs for the period 1990/91 to 2039/40 with a perpetuity based terminal value thereafter.

[188] See http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/depr0901.htm for a detailed explanation of development of Ofcom's approach to economic depreciation.

low and relatively high depreciation in years of full, or almost full, equipment utilisation. An explanation of the functioning of the economic depreciation algorithm can be found in annex 8.

9.56 An alternative method is to use a form of accounting depreciation. This would usually involve taking the actual price that would be paid for equipment (its replacement cost) and dividing this value by the expected equipment life to reach a depreciation charge for the year. As a result in periods of low utilisation unit costs are relatively high and periods of high utilisation unit costs are low. Therefore the timing of cost recovery under economic depreciation will differ from that under accounting depreciation.

9.57 The final stage in the model development is the calibration against actual data. Although we have constructed the model of a hypothetical efficient network it is calibrated against actual data provided by the four national MCPs. This is to ensure that the model provides reasonable estimates of a national MCP's efficiently incurred costs. The calibration focuses on the different types of network equipment used by the national MCPs and the accounting costs based on data from their management accounts. Detail of this calibration exercise can be found in annex 10.

9.58 We have performed a number of additional updates to the cost model we used for the 2007 MCT statement. These updates have focused on the following:

- Technological updates – reflecting technological development, efficiency savings and recent data on technological parameters.
- Cost updates – reflecting changes in the investment costs of network assets.
- Weighted average cost of capital (WACC) – reflecting our revised view of the WACC for a hypothetical efficient operator.

9.59 Further details of the technological updates and cost updates can be found in annex 10. The details of the calculation of the new WACC can be found in annex 8.

2.1 GHz spectrum costs

9.60 Without exclusive access to radio spectrum, it is currently not possible to offer national mobile telecommunication services without an unacceptable risk of harmful interference. Historically, very high commercial values have been placed on spectrum rights, most notably in the auctions for 3G spectrum in 2000. The cost of spectrum has previously been included in our cost model and has had a significant impact on the unit cost of termination. One important question in this review is the value of the 2.1 GHz spectrum, under market conditions relevant to this review.

9.61 Following the 2007 MCT statement, the value of 2.1 GHz spectrum was one of the issues that was considered at appeal by the CAT and referred to the CC for determination. The CC developed its own approach known as the '2G cap'. The CC accepted BT's arguments that the value of 3G spectrum could be determined by looking at the network costs of voice termination over the 2G network (at 1800 MHz) plus the value of 2G spectrum established by 2G Administered Incentive Pricing (AIP). The rationale underlying the 2G cap principle is that, under certain assumptions, it would set an upper limit on the amount that an operator delivering voice termination on its 3G network could charge. The implied value of 3G spectrum is the difference between the level of the 2G cap, and the network costs associated with voice termination delivered on the 3G network. By using this approach, the CC determined the value of 2 x 10 MHz of spectrum at 2.1 GHz to be £2.67bn in

(2006/07 prices). If this were a licence payment (i.e. discounted for gestation cost)[189] and expressed in 2008/09 prices, the forward looking value of 2 x 10 MHz at 2.1 GHz value would be £2.5bn in 2008/09 prices.[190]

9.62 However, we discuss in annex 9 that the implied spectrum valuations generated by mechanistically reapplying the 2G cap may simply be an artefact of the network cost model, based on what will be outdated scenarios by 2014/15. If 3G is now an established technology, and anticipating the prospect of entrants wishing to deploy the least-cost technology going forward, it may be that going forward a method anchored to the 2G cap is not the most satisfactory way to identify the spectrum costs for a hypothetical efficient mobile operator. Indeed, in contrast to a simplistic application of the 2G cap model to a world of liberalised spectrum, the alternative analysis that we conducted as part of our 2G liberalisation project points to a similar value of liberalised spectrum at 1800 MHz and 2.1 GHz.

9.63 In annex 9, we discuss alternative options for valuing spectrum. We note that one option is the use of information from the results of more recent international spectrum auctions. We consider that the use of these benchmarks is not without significant difficulties, due to the complications in ensuring a true like-for-like comparison. However, relative to alternative options, we consider that the evidence from past and recent international spectrum auctions provides the best available information on spectrum value on a forward-looking basis.

9.64 In terms of the results of international spectrum auctions, the highest-value award in recent years was in the US for 700 MHz spectrum. The equivalent value from this award for 2 x 10 MHz was £0.9bn (when converted to UK pop, 2x10MHz and 2008/09 prices). Since 2001, only two awards have generated values in excess of £1bn (when converted to UK pop 2x10 MHz and 2008/09 prices).[191] In addition to other spectrum awards, we have collected estimates of spectrum value from external analysts and ratings agencies (see paragraphs A9.49 to A9.51). Taking all this information together provides a range of between £0.3bn and £1bn for 2x10 MHz spectrum at 2.1 GHz. From the evidence that we have collected, we believe that the value of spectrum implied by the CC methodology appears to be too high relative to the international benchmarks. We believe an appropriate base case value for 2 x 10 MHz at 2.1 GHz is £0.5bn (in 2008/09).

9.65 Historically, the value of 3G spectrum has significantly contributed to the unit cost of termination, but this was under a LRIC+ standard for setting regulated charges. As stated previously, our preferred approach to modelling for this MCT review is to use pure LRIC. In our model under pure LRIC the spectrum cost has no impact on the unit cost of termination.[192] This point is demonstrated in our sensitivity analysis in Table 20 of annex 9. On that basis, given that we propose to adopt pure LRIC, we could simply omit detailed discussion of the issue in this document. However, because there is likely to be significant support for LRIC+ among some stakeholders, and to assist those responding to this consultation (and because this issue may be the subject of an appeal) we have also included our views on how we would

[189] It is reasonable to assume that there will be a period of time between an asset being purchased and put into productive use. The cost of holding this asset is the gestation cost. By adding the gestation cost to the actual cost we can determine the value of the asset if we were able to put it into immediate use once bought.
[190] See annex 9 for a discussion of these calculations.
[191] Table 18 in annex 9 gives a breakdown of the outcomes of these auctions.
[192] The reason for this is explained in Annex 9 (footnote 96), but we consider that willingness to pay for spectrum for additional capacity is likely to be determined by the network costs avoided from acquiring an additional carrier.

approach certain questions that are relevant to the question of the LRIC+ of MCT. We have also modelled the LRIC+ of MCT as part of our cost-modelling exercise.

1800 MHz spectrum cost

9.66 In addition to calculating the forward-looking value of 2.1 GHz spectrum, we have sought to calculate the future value of 1800 MHz spectrum. In the 2007 MCT model, 1800 MHz spectrum was valued on the basis of 2G administered incentive pricing (AIP). This meant that instead of a one-off payment, the cost of the 1800 MHz spectrum is modelled as a series of yearly payments. The AIP yearly payment for 2 x 30 MHz of 1800 MHz spectrum is equivalent to a one-off fee of £0.2bn (if paid in 2004/05 at 2008/09 prices). However, we do not believe that this value accurately reflects the forward-looking value of this spectrum, recognising the forthcoming liberalisation of spectrum during this control period.

9.67 We have considered a number of options for valuing the 1800 MHz spectrum, which can be seen in annex 9. We have concluded that we should place the same per-MHz value on the 1800 MHz spectrum as on spectrum in the 2.1 GHz band. In our hypothetical 2G/3G network cost model, three times as much 1800 MHz spectrum is used as 2.1 GHz spectrum. Therefore, with 2 x 30 Mhz of 1800 MHz spectrum, the value would be £1.5bn in 2008/09 prices.

9.68 For the avoidance of doubt, the analysis of spectrum values, both for 2.1 GHz and 1800 MHz, is solely for the purposes of the possible regulation of mobile termination rates and is not intended to pre-judge or influence any possible future review of spectrum pricing by us in different contexts (i.e. the review of AIP). As discussed in annex 9, spectrum awards (including in the UK) and the wider consideration of spectrum valuation in our strategic review of spectrum pricing issues may also provide important information that we would need to consider further in valuing spectrum for the purpose of the charge control.

Non-network costs

9.69 In addition to network costs, other non-network costs are included in the form of administrative costs. These administrative costs include general overheads and are described in more detail in annex 10. The administrative cost in each year is allocated across all network activities in proportion to those activities' share of total network costs. These costs are included in the cost model and are used to calculate the LRIC+ cost of MCT. However, they are not included in the calculation of pure LRIC unit termination costs, since administrative costs are common costs and are not sensitive to termination traffic.

Single cost benchmark irrespective of network technology

9.70 In choosing a charge control level, our objective is to enhance consumer welfare and to reflect a charge level that would prevail in a competitive market. In selecting this level, we consider the lowest-cost proven efficient technology during the period over the market review and we take into account the potential impacts on investment and innovation if providers are prevented from recovering their efficiently-incurred costs. The cost benchmark for the charge control is obtained from the network model of a hypothetical efficient operator, as discussed above.

9.71 As discussed in paragraph 9.30 above, we propose that a single cost benchmark, irrespective of technology, is the preferred and most practical approach. It allows the regulator to remain agnostic about the precise technology mix that is efficient for operators to deploy, and recognises that MCT is currently, and will increasingly be, provided by providers using different technologies. Moreover, there are practical reasons that support a single cost benchmark. It is difficult to distinguish a call type based on the technology used for the voice call; a voice call may use a mix of technologies during the length of the call. This approach is consistent with the approach taken in the 2007 market review, where a single cost benchmark was set irrespective of the call being terminated on a 2G or 3G network.

Technology choices for estimating a cost benchmark

9.72 There are more technological choices available to an efficient network operator since the network modelling exercise in the last market review. Since 2007, the national MCPs have rolled out HSPA[193] in their 3G[194] networks to improve the efficiency of conveying increasing data traffic on their network. The increasing network load from mobile broadband services has driven the wider industry to standardise new technologies, such as HSPA+,[195] LTE[196] and WiMAX,[197] to significantly increase the efficiency of data transfer. The technology upgrade path of each national MCP could differ according to their business strategy, with some providers likely to opt for an incremental upgrade via HSPA+ and others likely to choose radically different technologies such as LTE or WiMAX. MCPs have the freedom to choose proven technologies (2G,[198] 3G/HSPA) or more spectrally efficient 4G technologies (HSPA+, LTE, WiMAX).

9.73 The purpose of the cost model is to inform the appropriate levels of cost benchmarks for wholesale mobile voice call termination incurred by a hypothetical efficient operator at the end of 2014/15. The network model of the hypothetical efficient operator is based on the least-cost technology, or technology mix, for providing mobile voice call services with UK-wide coverage. We have considered four network technology scenarios to evaluate the appropriate cost benchmark for setting a charge control:

- an operator with 2G and 3G/HSPA networks;
- an operator with a 3G/HSPA network;
- an operator with 3G and LTE networks; and
- an operator with 2G, 3G/HSPA and LTE networks.

[193] HSPA refers to the high speed packet access technology introduced into 3G networks as incremental versions of the 3G baseline technology
[194] 3G refers to the wideband code division multiple access technology standardised by the 3GPP standards organization and rolled out by UK mobile network operators
[195] HSPA+ refers to the next generation evolution of HSPA
[196] LTE refers to Long Term Evolution technology standardised by the 3GPP standards organization as the successor of 3G technology
[197] WiMAX refers to Worldwide Interoperability for Microwave Access technology standardised by the IEEE standards organization
[198] 2G refers to the second generation GSM technology deployed by UK mobile network operators

9.74 3G/HSPA is the efficient proven technology in today's market and is therefore included in all these network scenarios. LTE is used as a proxy for all 4G technologies (including WiMAX and HSPA+) to reflect the likely efficiency improvement from deploying 4G technologies.[199]

Cost benchmark based on 2G and 3G/HSPA networks

9.75 A network cost model based on 2G and 3G/HSPA reflects the existing network deployments of the national MCPs and provides a useful cost benchmark. Consistent with the 2007 statement, we assume that our hypothetical efficient operator is using 1800 MHz spectrum to run 2G services. Although offering 2G services at 900 MHz may cost less to achieve, once 900 HMz spectrum is liberalised, a rise in the cost of 900 MHz spectrum would offset any difference in cost between offering 2G services using 900 MHz spectrum and 1800 MHz spectrum. When setting the charges in the 2007 statement, 2G was assumed to operate at 1800 MHz (although both 900/1800 MHz and 1800 MHz operators were modelled) and we propose to set our charges using the same approach.[200]

9.76 Both 2G and 3G/HSPA are proven technologies and reduce the degrees of uncertainty in the network model for cost computation. Network dimensioning and asset prices for these technologies have higher confidence levels than next-generation 4G technologies that are yet to be deployed. Although this network scenario explicitly captures the costs of running parallel 2G and 3G/HSPA networks, it is vulnerable to information asymmetry between the MCPs and Ofcom regarding migration rates and the costs of operating two networks in parallel.

9.77 Of the two technologies, 3G/HSPA can be considered the more efficient technology, and that most likely to be chosen by a hypothetical new entrant. Therefore, setting a charge level that includes the less efficient 2G technology might deviate from the principle of using the modern equivalent asset as the benchmark for the competitive market. However, in choosing a cost benchmark we also recognise that MCPs should be provided with an opportunity to recover efficiently incurred investment in 2G networks, particularly if there are ongoing consumer benefits with providing 2G services such as wider network coverage. Moreover, as discussed above, we are not so concerned about MCPs failing to choose the most efficient technology at any given point. The retail market is competitive and the same network is used to supply services in competitive markets (e.g. wholesale and retail origination services). Finally, historically MCPs have been unable to always deploy the most efficient network technology at any point in time as some technology choices (e.g., rolling out UMTS technology at 900 MHz) were not (and are still not) possible because of regulatory constraints. This is a significant difference from the fixed sector where operators are generally able to invest in new and more efficient technology as they see fit. The next section considers the likelihood of a network based solely on 3G/HSPA, reflecting the competitive context in 2014/15.

Cost benchmark based on 3G/HSPA networks

9.78 3G/HSPA is the most efficient proven technology for delivering voice and data services in the current market context. The national MCPs have established 3G

[199] This simplifying assumption does not imply anything about our views (or more accurately, our lack of a view) concerning the most efficient next-generation technology.
[200] See Ofcom Mobile Call Termination Statement (2007) paragraph 9.138 to 9.135.

networks and a hypothetical new entrant is likely to choose 3G over 2G for new network deployments (or possibly LTE in the later years of the control period).

9.79 As explained above, modelling a single technology removes any information asymmetry between Ofcom and the MCPs regarding the efficient migration rate and parallel running costs of operating more than one network.

9.80 A cost benchmark based on 3G/HSPA would need to take into account the cost of upgrading the network assets to support 3G coverage at similar levels to current 2G coverage. Such costs would include upgrading 2G-only sites to support 3G and the deployment of new 3G sites to meet the expanded demand from carrying existing 2G voice capacity and forecast future voice and data traffic. Although 3G/HSPA is spectrally more efficient than 2G in delivering voice and data services, the cost of 3G coverage extension might lead to 3G being a higher-cost technology for wholesale voice call termination. However, our current modelling suggests that, even at 99% coverage, 3G-only appears to be the lower-cost technology for delivering termination (see Figure 44 in annex 8).

9.81 A 3G/HSPA network with coverage similar to 2G coverage might reasonably be expected by 2014/15. For example, the growth of mobile broadband services might incentivise an efficient operator to achieve 3G coverage similar to 2G coverage by 2014/15.

9.82 However, industry expectations point to the continued existence of 2G networks in 2014/15 despite a larger proportion[201] of subscribers and traffic on the 3G/HSPA network. The presence of 2G networks is necessary to support legacy handsets that can operate only on 2G networks (unless forced migration becomes practicable) and to support international roaming customers who require access to 2G services. Modelling a 3G/HSPA- only network, therefore, would be likely to fail to capture the (historical) efficiently-incurred costs and the continuing practical need to run a 2G network alongside it.

Cost benchmark based on 2G and/or 3G/HSPA and LTE networks

9.83 The long-predicted rapid growth in mobile broadband, and rising use of mobile voice services, has prompted the industry to explore more spectrally-efficient technologies to deliver mobile services. This has resulted in the standardization of new technology schemes, such as LTE and WiMAX, which employ radically different radio access schemes, flatter core network configurations and new features such as multi-antenna[202] base stations and user devices.

9.84 We believe that including LTE in the primary network scenario may be unduly speculative at this stage. Although market expectations point towards the likely adoption of next-generation technologies during the next charge control period, the choice of next-generation technology, the deployment time frame and the migration rate are highly uncertain. Including LTE might capture the likely network scenario in 2014/15, but the costs of LTE deployment are uncertain, and the information asymmetry between operators and the regulator makes it more difficult for us to verify whether cost estimates provided by the MCPs are biased upwards or not (in contrast to the case with proven technologies such as 2G and 3G).

[201] We forecast that subscribers with handsets that include 3G will reach 77% of subscribers for the efficient operator by 2015 (see annex 8).
[202] Multi-antenna features that form part of next generation technologies are widely referred to as MIMO

9.85 We believe that a cost benchmark based on LTE is too uncertain for the evaluation of a charge control level, as LTE and other next-generation technologies are commercially unproven. LTE networks are not yet deployed in the UK. The MCPs can be expected to adopt more efficient next-generation technologies at an appropriate time as a result of the competitive pressures in the market for call origination and the growth of subscriber-driven data services. Therefore, as and when LTE allows lower lifetime network costs, MCPs would be expected to move to such technology. At present the efficiency of LTE is too speculative to incorporate in our efficient cost benchmarks.

9.86 Inclusion of LTE in the network cost model would also require allocation of appropriate spectrum for LTE deployment. There is great uncertainty regarding the availability of spectrum and equipment suitable for LTE and the valuation of such spectrum or equipment. The 2G-cap principle that was employed by the Competition Commission in determining the 2G/3G blended cost benchmark for the 2007 charge control period would suggest that the cost of wholesale voice call termination over LTE, inclusive of spectrum costs, should be no higher than the cost of termination over current proven technology – i.e. a 2G/3G/HSPA network.

9.87 A cost benchmark that excludes LTE is consistent with our approach in setting BT's network charge control, where we modelled a hypothetical ongoing network based around BT's existing circuit-switched network.[203] At that time, next-generation networks had not been deployed on a national scale and large-scale deployment was considered unlikely by the end of the charge control period (September 2013). Large-scale deployment of LTE by 2015 is highly uncertain, and so we are not proposing to include it in the cost benchmark.

Preferred technology choice for the cost model: setting the charge control level based on a 2G and 3G/HSPA network cost benchmark

9.88 Despite 3G/HSPA being the most efficient technology in the narrow sense of providing voice termination capacity, we consider that a cost benchmark based only on 3G/HSPA is not appropriate, because:

- Current forecasts indicate that a significant proportion of subscribers will use handsets without 3G capability[204] and forced migration is not proposed or mandated;
- Although an entrant may deploy 3G in preference to 2G, it may still wish to provide 2G termination services, for example by using another MCP's supply, to meet the requirements of international roaming customers.
- A new entrant might not roll out 3G coverage that is equivalent to 2G, but might instead rely on a 2G roaming agreement with another provider for termination in certain geographies – an approach that has been adopted by H3G.

9.89 One respondent argued that a 3G/HSPA network is not substantially more efficient than a 2G network. They argued that a LRIC+ model generating substantially lower voice unit costs on a 3G network than on a 2G network must be flawed, as, if this were correct, all the large MCPs would be migrating most (if not all) of their

[203] See section 4 of http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/statement/nccstatement.pdf
[204] By 2014/15 we estimate that 23% of subscribers will be using 2G only handsets.

subscribers to their 3G network very quickly to take advantage of the cheaper technology.

9.90 This argument overlooks the fact that a number of MCPs have indicated that the cost of migrating many (particularly pre-pay) subscribers from the 2G to 3G network is relatively high as handset subsidies are needed.

9.91 In summary, we believe that the most appropriate technological base for our network cost model is a network using both 2G and 3G/HSPA. Using this option is both consistent with the previous MCT charge control and with the way we have treated network cost modelling in the presence of new technologies in other charge controls.

Summary of cost modelling results

9.92 We have constructed three scenarios to produce a range of values for the unit costs of termination. These scenarios are outlined in table 4 below and include the unit cost of termination from each scenario. A detailed sensitivity analysis of the effect that each variable has on the termination rate can be found in annex 11 (annex 9 for spectrum). Annex 11 should be viewed as a key element of the proposals discussed in this consultation document. All scenarios assume a hypothetically efficient 2G/3G operator using both 1800 MHz and 2.1 GHz spectrum. We considered changing the value of spectrum, but decided against it for two reasons:

i. Our preferred cost standard is pure LRIC which in our model is unaffected by the value assigned to spectrum as third-party incoming voice traffic does not require our hypothetical efficient operator to deploy extra spectrum carriers; and

ii. If we were to include spectrum value we would have a high value of spectrum in the high-cost scenario and a low value of spectrum in the low-cost scenario. We do not believe that it would be logical to have a high value of spectrum in the same scenario as low traffic volumes (or vice versa). As such, we have kept the value of spectrum constant in all scenarios. An analysis of the effect of different spectrum values on the ppm cost of mobile termination can be found in annex 9.

9.93 The LRIC+ value includes a contribution from administration costs. Administration costs are common across all of an MNO's activities and therefore a share of these costs should be included when using LRIC+.[205] Because these costs are common they are not included when using pure LRIC. An explanation of how these admin cost are calculated can be found in Annex 8.

9.94 In the scenarios we assume that all the technological parameters remain the same. The only parameters we seek to change are those associated with the traffic on the network (volumes and market share).

Table 4 - Comparison of scenarios for unit costs in 2014/15 (2008/09 prices)

	Base Case	Higher Cost Scenario	Low Cost Scenario
Volumes	Medium	Low	High

[205] In the base case, the contribution to administration costs under LRIC+ is 0.1ppm.

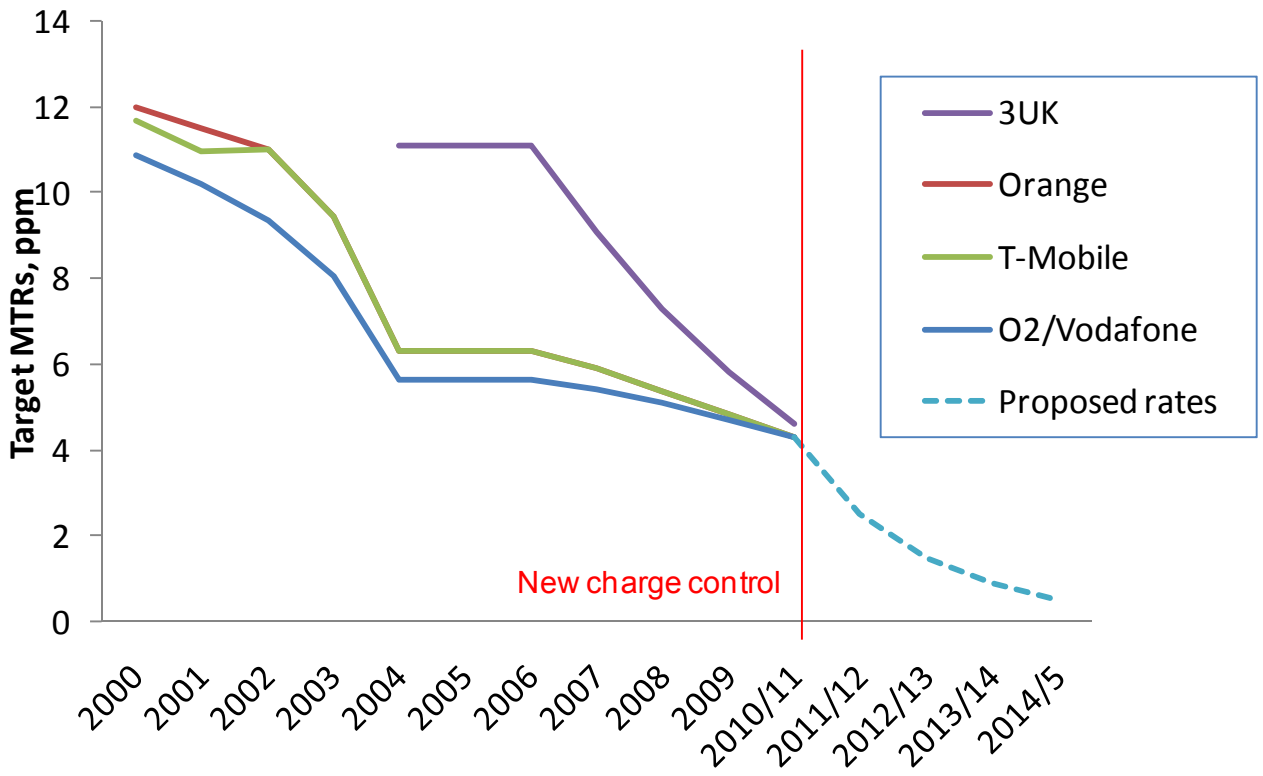
Market Share	25%	20%	25%
Pure LRIC	0.5ppm	0.5ppm	0.5ppm
LRIC+	1.5ppm	2.0ppm	1.0ppm

Source: Ofcom estimate

9.95 Annex 11 shows that the range of values for pure LRIC in 2014/15 (2008/09 prices) is between 0.2ppm and 0.5ppm across all the model sensitivities we discussed. The corresponding range for LRIC+ is between 0.8ppm and 2ppm. The minimum and maximum values relate to extreme sets of assumptions with many sensitivities generating values close to our base case scenarios of 0.5ppm for pure LRIC and 1.5ppm for LRIC+.

9.96 Figure 11 below shows the actual MTRs since 2000 for each MCP, and our proposed caps between 2011 and 2015. The chart highlights both the proposed symmetry of rates going forward among national MCPs and the consistency of our proposals with the history of MTR regulation during the period (even if the rate of reduction of regulated MTRs over time has been somewhat uneven with steeper reductions between 2000 and 2004 and - if our proposals were implemented - between 2011 and 2015, and more modest reductions between 2004 and 2011).

Figure 11 – MTRs between 2000 and 2015



Source: Ofcom

Implementation of the charge control

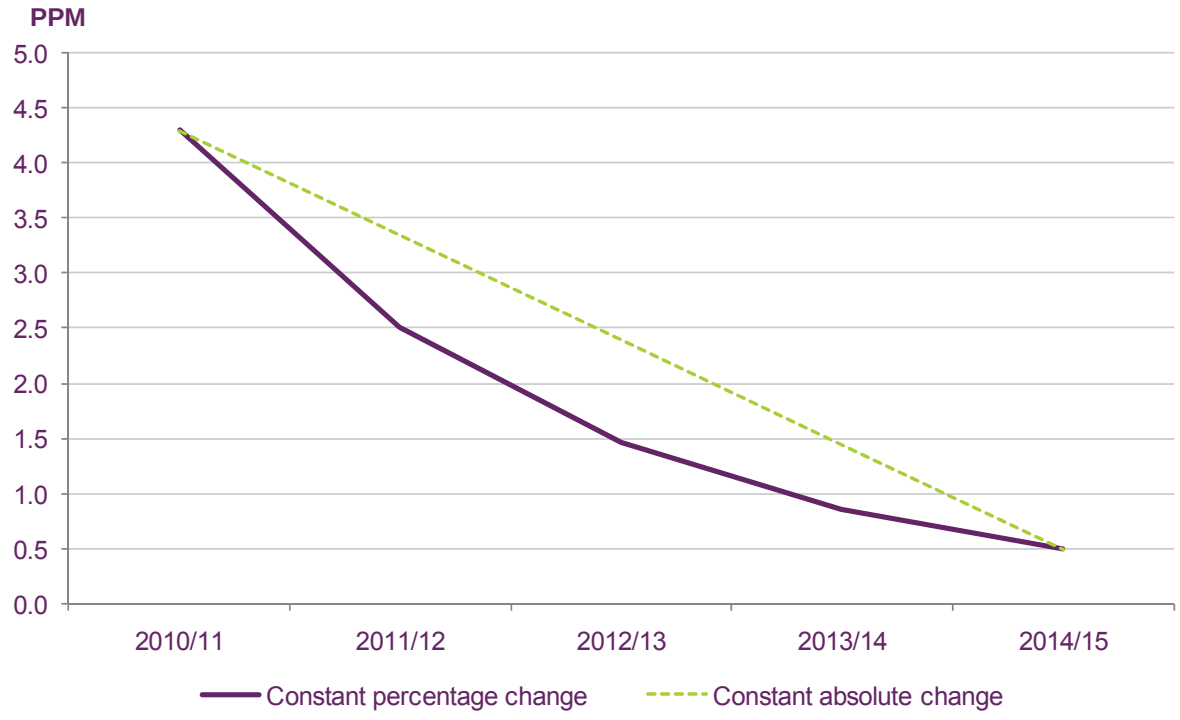
Implementing a four-year glide path

9.97 We propose to set a four-year charge control to bring down the weighted average charge for MCT to efficient unit costs by 2014/15. As discussed above, we will specify a maximum average charge as an RPI-X control to reflect the required reduction from the 2010/11 charges necessary to reach the efficient charge level for 2014/15. We also propose to a set a one-year glide path to align H3G's termination charges with the 2G/3G MCPs at the end of the first year of the charge control. We have considered two options for implementing this four year glide path:

- Option 1 – Use a constant yearly percentage decrease in charges.
- Option 2 – Use a constant absolute decrease in charges.

9.98 Figure 12 shows the shape of each glide path. Previously, we have tended to use a constant percentage change when setting glide paths. As can be seen in Figure 12, using a constant percentage decrease will cause a larger absolute decrease in the early years of the charge control. Usually the difference between these two glide paths is hardly noticeable, but given the size of the proposed decrease in termination charges, the shape of the glide path becomes more significant.

Figure 12 – Glide path options for 2G/3G MCP (2008/09 prices)[206]



9.99 In broad terms, the path of reductions in charges should give due consideration to balancing two objectives:

[206] Source: Ofcom estimates.

- reductions should be achieved sufficiently quickly in order to deliver substantial benefits to consumers, including benefits to be derived by addressing possible competitive distortions; and
- reductions should allow sufficient time for operators and customers to adjust to new levels and structures of mobile charges, and take these changes into account in their business plans and planned capital expenditure.

9.100 The first point seeks to ensure that consumers are able to benefit from lower prices for network services (including fixed-to-mobile calls and fixed calls in general). The second point notes that benefits to callers to mobiles should not be at the expense of unacceptable disruption to the mobile sector, or to the industry and consumers more generally (e.g. through adverse effects on investment).

9.101 In addressing this question, we consider that MCPs should have the opportunity to recover their efficiently incurred costs. It is therefore important to ensure that the path of required charge reductions does not require that MCPs charge below their respective underlying cost benchmarks.

9.102 We propose to use a glide path based on a constant percentage change, consistent with the approach we have followed in other recent charge controls.[207] Although the yearly decrease in charges is large, there is little possibility of the unit charge falling below projected pure LRIC unit costs (see figure 30 in annex 11). Although the reductions are large in percentage terms they are much smaller than the absolute change in termination charges seen in previous charge controls. As such, we do not believe there would be any benefit in allowing a slower decline in charges during the early period of the charge control. We believe that this option best balances the short-term and long-term goals outlined above.

Treatment of H3G's charges

9.103 By the end of the current MCT charge control (31 March 2011), the four 2G/3G providers (three, after the T-Mobile/Orange merger completes) will have symmetric maximum average termination rates. H3G will have a termination rate that is higher than the four 2G/3G operators. This will mean that (assuming that there is no one-off adjustment at the start of the charge control) O2, Orange/T-Mobile and Vodafone will all have the same maximum average charge at the start of the charge control. H3G will start the charge control period with an MTR approximately 0.3ppm higher than the other national MCPs (in 2008/09 prices). In the next charge control period we propose to remove this difference in MTRs, using one of three options:

- Option 1 – Establish a smooth glide path under which charges are reduced at a constant percentage rate in each of the four years (using an RPI-X formation) so that charges are aligned in 2014/15

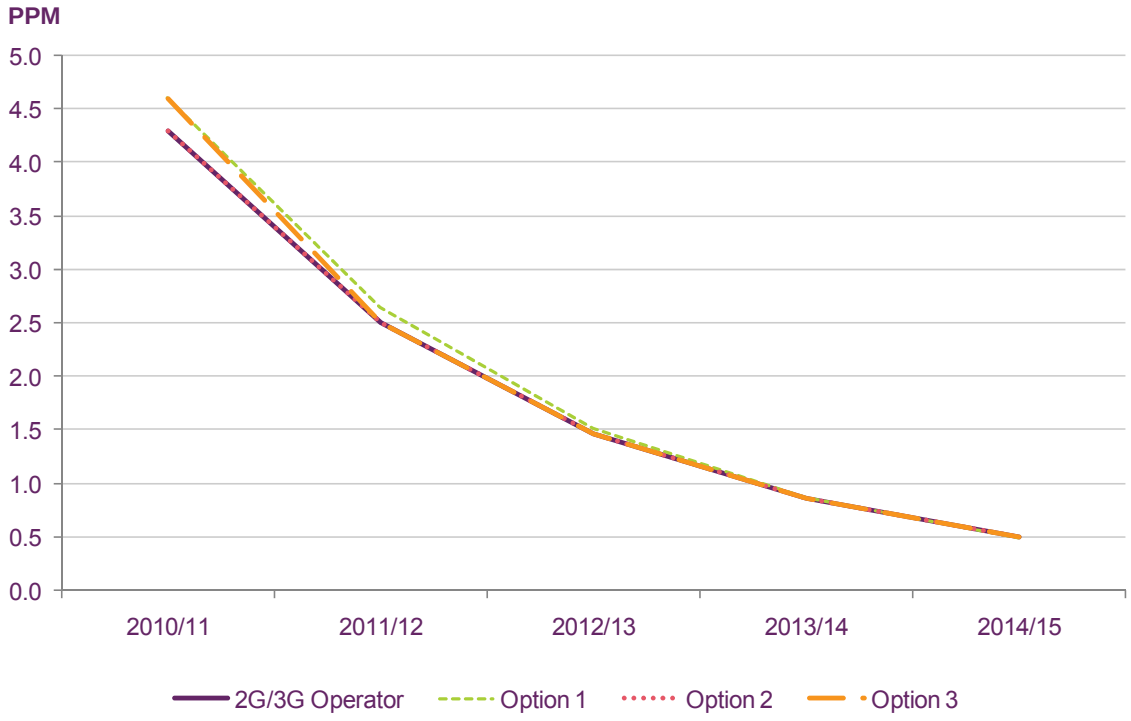
- Option 2 – Reduce charges immediately through a one-off cut and then adopt the same glide path as the 2G/3G MCPs

- Option 3 – Impose a steeper glide path in the first year so that charges align at the end of the first year. For the remaining three years of the charge control all charges would follow the 2G/3G MCP glide path

[207] See the Review of BT network charge control at http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/ ; and the Leased Lines Charge Control at http://www.ofcom.org.uk/consult/condocs/llcc/

9.104 These options are set out in the figure below.

Figure 13 – Glide path options for H3G (2008/09 prices)[208]



9.105 We have proposed (9.42) that we should have a single cap for all providers. This might suggest that we aim to remove any difference in MTRs at the first opportunity. However, providers already face steep declines in the first year of the charge control. An additional instant reduction in the termination rate of H3G might be seen as disproportionate. Therefore, we believe that the most appropriate approach is Option 3 (i.e. not an instant reduction but a steeper glide path in year one, that aligns charges at the end of the first year of the charge control). This option quickly removes the charge differential without forcing an unexpected year zero charge that could destabilise investment of customer contracts. It will also allow Ofcom to comply with the 2009 EC Recommendation that requires termination rates to be symmetric by 31 December 2012.

Setting the charge control

9.106 Consistent with the current approach, we propose to place a charge control on the average of the charges levied by each of the national MCPs (i.e. across daytime, evening and weekend charges) for terminating voice calls, weighted by the relative call volumes in the previous year. This charge control is intended to bring the weighted average charge down to the efficient charge level by 2014/15. The charge control we propose will require that, during each period of the control, the average charge set by the regulated MCP (the average interconnection charge, or AIC) does not exceed the charge with which the operator is required to comply (the maximum average charge, or MAC). In this charge control we also propose to address the problem of MCPs changing their MTRs on a regular basis to exploit the current charge control mechanism. This will be discussed in greater detail in part 3 of this section.

[208] Source: Ofcom estimate.

9.107 We propose to specify the MAC for the periods of the charge control (2011/12, 2012/13, 2013/14 and 2014/15) as an RPI-X control, in order to to reflect the required reduction from the 2010/11 charges necessary to reach the efficient charge level for 2014/15. As discussed above, we propose to set a different MAC for H3G for the first year of the charge control (2011/12).

9.108 Under the RPI-X approach, the MAC in each year of the charge control is calculated as the previous year's MAC for that MCP, multiplied by (1 + ΔRPI – X), where ΔRPI is the change in the Retail Price Index and X is the specified uniform percentage reduction in the real level of the charge for that MCP. The change in RPI is measured as the change measured over the 12-month period from 31 December to 31 December immediately prior to the start of the annual charge control period. The approach is designed to give clarity as to the level of the MAC for the coming year, to enable the MCPs to set charges with certainty at the beginning of each annual charge control period.

9.109 The following indicative table sets out the proposals, at approximate 2008/09 prices.

Figure 14: Illustrative table of charge control proposals (2008/09 prices)[209]

	Target charge 2010/11	Final charge in 2014/15 (2008/09 prices)	X value for yearly RPI-X formulation[210]
2G/3G national operators	4.3	0.5	42.7%
H3G (Year 1)	4.6	0.5	46.5%

Question 9.2: Do you agree with our proposed modelling approach, as discussed in this section, the supporting annexes and the actual model? If not, please discuss the specific proposals you disagree with.

Part 3: Degree of flexibility to price by time of day

Background

9.110 In the 2007 charge control, there are no restrictions on how often the four national MCPs are able to change their MTRs, nor the size of any adjustments (provided the requirements in relation to average charges are met). This includes variations on prices by time of day or time period during the week (e.g. weekend rates). During the current control, a number of fixed providers and one of the national MCPs have

[209] Source: Ofcom estimates

[210] It should be noted that the X in the RPI-X formulation will not be exactly equal to the real yearly percentage reduction. When prices are stated in nominal terms, inflation must be accounted for and is treated as a geometric term. In the RPI-X formulation inflation is treated as an arithmetic term. A geometric adjustment must be made to the real yearly percentage change. X in the RPI-X formulation is equal to the real yearly percentage change multiplied by (1+RPI). For this calculation we have assume a constant RPI of 2.5%.

raised with us concerns over frequent and significant variations in MTRs by some MCPs (a practice referred to in industry, and from now on in this document, as 'flip-flopping'). These providers are exploiting a facet in the charge control to secure extra revenue (that is, a higher total revenue derived from MCT than anticipated as being the maximum permissible to address their SMP), in ways that neither providers nor Ofcom anticipated when the current design of the control was consulted on in 2006.[211]

9.111 We want to close this loophole in the new charge control. This is because left unaddressed, we believe it would have an adverse effect on purchasers of MCT and, ultimately, on consumers during the period of this market review. There are a number of options for doing this, which we set out below.

Explanation of how the existing charge control works

9.112 The 2007 charge control formula allows the flexibility to make price changes during the year at any time and to charge different prices by time of day. Variation in prices is permitted as long as the overall prior year traffic weighted average charge (the Average Interconnection Charge or AIC) for the year does not exceed the Target Average Charge (TAC). The TACs for the 2007 charge control are set out in the 2007 statement[212] and the subsequent amendment in the 2009 statement.[213] The following shows the charge control formula and assumes the charge control year is 2011/12:

$$AIC = \frac{\Sigma(\text{2010/11 volumes} \times \text{2011/12 prices})}{\Sigma\text{2010/11 volumes}}$$

9.113 Therefore, MCPs could, for example, set the price of daytime termination above the TAC, provided they offset this sufficiently by setting other MTRs at a lower level (i.e. evening and/or weekend) such that the weighted average of all these prices does not exceed the TAC.

Why do we permit time of day pricing flexibility?

9.114 Within the confines of the overall cap on charges we permit the flexibility described in paragraph 9.112and 9.113. Our general approach to setting charge controls is to intervene no more than is necessary to achieve our regulatory aims. And allowing MCPs a degree of pricing freedom can allow them to vary the structure of charges, which can help promote efficiency. For example, higher daytime rates can allow MCPs to send price signals, which if passed on to end-users might encourage more efficient use of networks (i.e. demand shifting to less busy periods where termination rates are relatively lower). If terminating operators can shift demand between different times of day, then it may be possible for them to meet the same demand with less overall capacity and hence at lower cost.

[211] http://www.ofcom.org.uk/consult/condocs/mobile_call_term/new_mobile.pdf
[212] http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf - pages 405-407
[213] http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/CTMAmendment2009final.pdf - pages 9 & 10

9.115 However, as we have discussed in the context of the design of other charge controls such as BT's leased lines[214] and network charge controls, we have to balance efficiency consideration against wider competition and regulatory objectives.

How has flexibility of pricing been used in practice?

9.116 By allowing MCPs freedom to change the structure of their time of day rates, some providers have used this flexibility to 'flip-flop' their rates. This flip-flopping behaviour is motivated by securing additional revenue under the charge control beyond that envisaged by us when setting the glide path.

9.117 Flip-flopping works by exploiting the difference in the number of weekends in each month, between the prior year and the current year. By identifying the months in the current year where the number of weekends differs from the same months in the prior year, prices can be structured to maximise revenues.

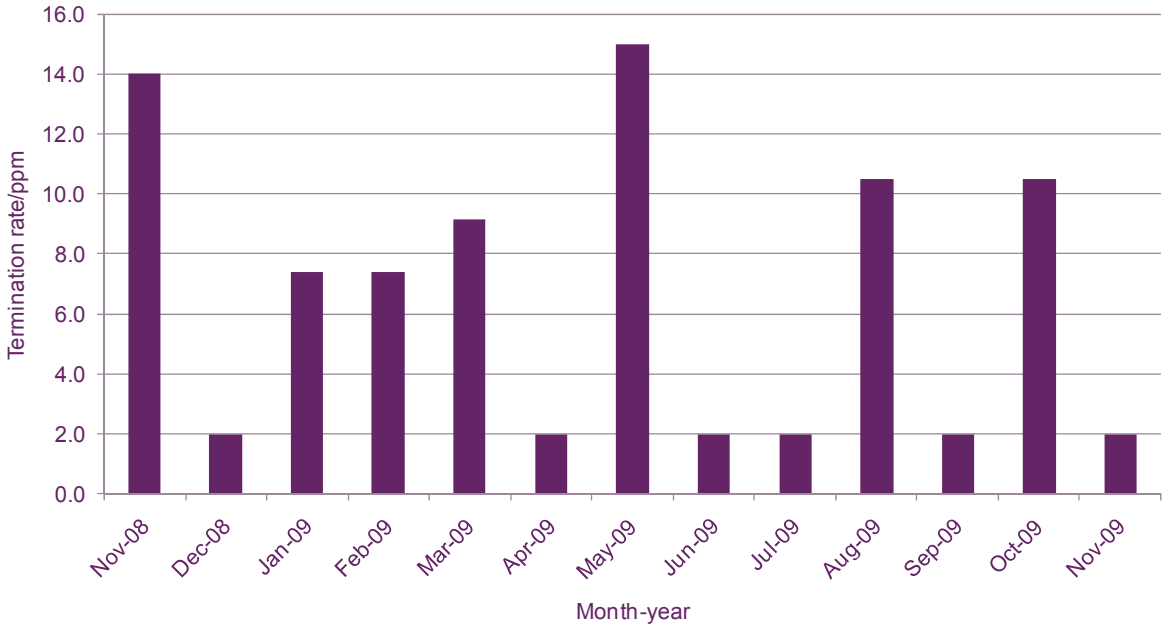
9.118 When the number of weekends in a particular month increases from four to five, for example, between the prior year and the current year, a MCP can increase its prices at the weekend and decrease prices in the day and evening. Because the prior year had a lower number of weekends than the current year, the higher price is given a lower weighting for the purpose of calculating compliance. However, in the current year, it gives the provider an extra weekend of revenue at the high price. If the opposite happens in a month and the number of weekends decreases from five to four, the provider can price high in the day and evening, and low at the weekends. If the effect reverses month-on-month, then prices are flipped. In some cases we have seen them change from a range of around 12p to 15p at the weekend in one month, to 2p to 5p in the next month.

9.119 An illustration of what this means in practice helps demonstrate the degree of disruption caused by flip-flopping for those purchasing MCT from a MCP which has chosen to exploit this practice. The graph below sets out an example of how one national MCP has flipped its weekend termination rates.[215]

[214] Examples of the balance that should be struck between efficiency and competition and regulatory objectives was discussed in paragraphs 3.79 to 3.86 of Ofcom's 2008 Leased Lines Charge Control consultation (see http://www.ofcom.org.uk/consult/condocs/llcc/). See also paragraphs 4.87 to 4.95 of Ofcom's 2009 Network Charge Control consultation (see http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/reviewbtncc.pdf) for a similar discussion

[215] There is also a risk that the range of the difference between the extremes of rates (e.g. the 2p and the 15p) will continue to become larger as each of the MCPs join in. This is because if their outbound traffic is greater in proportion to their inbound traffic they will be losing money because of the flip-flopping and will need to go to the extreme in terms of pricing differentials in order to minimise the loss. If a MCP is making money out of flip-flopping then if the others join in they will need to expand the differential to ensure they continue to gain extra revenue from it.

Figure 15 – Weekend termination rates November 08 to November 09



Why is it a problem?

9.120 First, flip-flopping allows MCPs to gain extra revenue beyond that envisaged by the regulator when the glide path to efficient unit costs was set. We have made some estimates and found that MCPs could obtain up to an extra 5% of termination revenue per annum, i.e., in the tens of millions of pounds. This compares to the baseline case where a single, flat rate is charged throughout the year i.e. no separate time of day rates.

9.121 Second, frequent and radical changes in time of day rates increase risk for originating providers and potentially raise their costs, in a way that is not susceptible to competitive pressure (that is, the source of the ability to flip-flop is related to the underlying SMP in call termination). For example, in Colt's response to the preliminary consultation[216] it states that "*it is impossible for most CPs to alter their retail pricing to reflect these changes. It is a regulatory requirement that customers are given a minimum of one month's notice for price changes. In the corporate market many large customers are on fixed-price, fixed-term contracts which make price changes impossible. In any case such monthly price changes would be onerous and confusing for customers*".

9.122 Colt also states in this response that "*the practical effect of monthly rate swings is that originating CPs have to set retail rates to cover the highest expected charges. This is necessary to ensure that losses are not incurred through an adverse combination of traffic and MCT profile.*" They are effectively placing a premium on their retail prices to self-insure against spikes in termination rates. This is obviously detrimental to consumers, who pay higher prices as a result.

9.123 In its response to the same consultation C&W also supports a change and states that "*frequent price changes make it difficult for CPs to assess whether the MCP is*

[216] See pages four and five of Colt's response at:
http://www.ofcom.org.uk/consult/condocs/mobilecallterm/responses/COLT.pdf

complying with the charge control and there is potential for the price changes to result in a detriment of some operators over others depending on the particular operator's traffic profile. In addition frequent price changes place CPs under an administrative burden as these are reflected in charges to customers. This inevitably ripples through to retail pricing and the customer can have no hope of keeping up with the applicable charge for their calls."[217]

9.124 Even if new rates are not directly passed through to consumers at the time they happen, retail customers are likely to lose out in the long run from higher overall rates. If originating providers do not pass through any kind of price increase (or allow a premium in retail tariffs to cover future expected increases) then they will be exposed financially.[218]

9.125 Flip-flopping behaviour is in fact likely to operate counter to the efficiency objectives that might argue for freedom over pricing structures within the constraints of the charge control. As set out in paragraph 9.114 above, our reason for allowing pricing freedom is that it would induce efficient network use, for example via price signals indicating the relative costs of meeting peak demands. For this to work, there needs to be some sustained certainty on mobile operators' rate structures so that originating providers, and in turn consumers, can react in a way that will encourage efficient use of networks. If a set of prices exists for one month and is radically changed the next, it is difficult to see how an originating provider can change its rates to react in time, because of notice periods and agreements like fixed-term contracts. Similarly, there will be a time lag of significantly more than one month, for consumers to react and change their calling patterns in response to a change in prices.

9.126 Notwithstanding the above concerns about the effect of pricing volatility on efficiency, there is clearly an additional impact arising from frequent and radical price changes, allowing the MCPs to gain extra revenue. We have not revised the current charge control condition, considering that any risks of harm need to be considered alongside the need to preserve regulatory certainty once a control is set. In setting a new charge control, however, we want to ensure a glide-path approach whereby pence per minute charges match forecast costs plus a reasonable rate of return. By improving the design of the rule to exclude flip-flopping, we set conditions such that MCPs are only able to increase their profitability by operating their networks more efficiently or by expanding demand for services and thereby reducing unit costs. The intention was not that operators could increase revenues by exploiting the mismatch between prior year and in-year weights.

Question 9.3: What is your view of the harm caused by flip-flopping? Please provide evidence to support your response.

Assessment of options

9.127 We have considered a range of options for resolving flip-flopping. We discuss the pros and cons of these below.

[217] Page 3 of C&W's response at:
http://www.ofcom.org.uk/consult/condocs/mobilecallterm/responses/CableWireless.pdf

[218] We have also received informal representations from potential new entrants that the frequent and radical price changes are particularly problematic. As they cannot be certain of what the MTRs will be from one month to the next, it is difficult for potential new entrants to estimate their outgoing payments. One potential new entrant, in informal discussions with Ofcom, highlighted that this is particularly problematic in the context of trying to obtain funding.

Options for resolving the issue

9.128 The list of options for addressing the issue of flip-flopping is below. Option 1 is to retain the current formula, against which we assess each of the other options. At the end we set out our preferred option, but we welcome stakeholders' views.

Option 1 – adopt a formula similar to the 2007 control (the counterfactual)

Option 2 – restrict the frequency and size of rate changes (rate change restrictions)

Option 3 – impose a constant time of day rate ratio

Option 4 – impose a single, constant, flat rate for each whole year of the control (flat rate)

Option 1 – the counterfactual

9.129 This option would leave the current charge control formula unchanged. As such, the flexibility we currently allow the MCPs, as set out in paragraph 9.112 and 9.113, would remain the same, and we would monitor compliance in the same way.

How would the compliance calculation work?

9.130 This option would continue to use the methodology for calculating compliance used in the existing charge control. Compliance is assessed on the average of the rates levied by each of the MCPs (i.e. across time-of-day charges) for terminating voice calls, weighted by the relative call volumes in the previous year. This is the average call termination charge or 'ACTC' (see formula in paragraph 9.112) and it must not exceed the charge with which the operator is required to comply, which is the maximum average charge or 'MAC'.

Pros and cons of option 1

9.131 The benefit of retaining this option is that it gives the MCPs full flexibility to vary their rates by time of day. But, as explained above, some of the MCPs could use freedom to gain extra revenue to the detriment of purchasers of mobile call termination, which, if unchecked, we would expect to be to the ultimate detriment of consumers.

9.132 This is the counterfactual against which we assess the other options. Since it involves maintaining the status quo, it does not address the issue of flip-flopping that has emerged during the current charge control period.

Option 2 – Rate change restrictions

9.133 By restricting how often, and by how much, rates can change we directly address both the frequency and size of these changes. We still allow some flexibility to vary rates throughout the year and by time-of-day period. This option works as follows:

- Rate changes are restricted to the first day of every quarter i.e. this new charge control will commence on 1 April 2011, therefore changes can only be made on 1 April, 1 July, 1 October and 1 January in each year of the control.[219]

[219] There will also be the ability for us to direct a further change to ensure that the MCPs are compliant within the final year of the charge control. This is discussed further in annex 15.

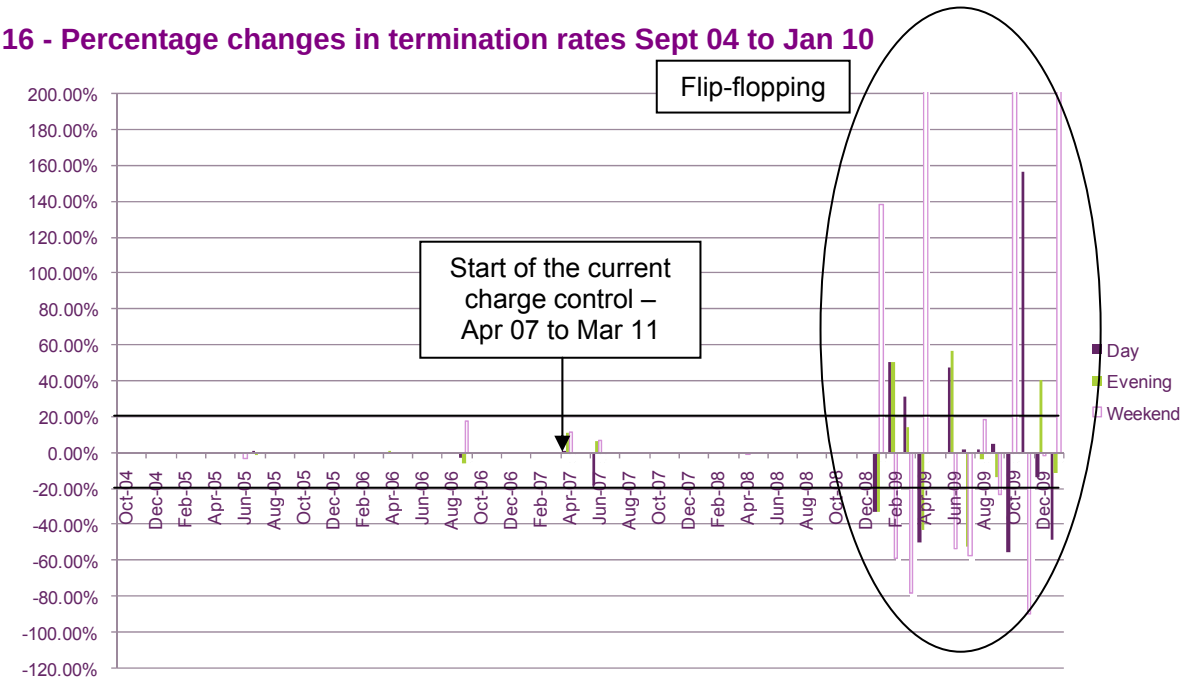
- Within each control year, rates from one quarter to the next, for each time-of-day period, cannot increase by more than 20%. There is no restriction on decreasing prices, although any decreases are also restricted to the first day of each quarter.

9.134 Between control years there would be no 20% restriction (apart from the requirement to meet the MAC in the new control year). So between the existing rate on 31 March of the previous control year and the rate on 1 April of the new control year, a 'step change' in rates would be permitted. This 'step change' could be both in the rates themselves and in the time of day gradient. Thereafter, any changes made within the year would be subject to the 20% restriction; that is, for the changes on 1 July, 1 October and 1 January. Clearly, while step changes would be allowed between years, in making adjustments to their rates, MCPs would still have to do so in compliance with the MAC for that year.

9.135 Under this option, we have had to consider the particular percentage restriction (currently 20%) and the number of changes allowed. The argument for retaining some flexibility under the charge control is that some MCPs may still want to incentivise efficient network use by altering relative prices (e.g. between peak and off-peak periods).

9.136 To assess whether the choice of 20% would retain a sufficient degree of flexibility, we have looked at the four national MCPs past behaviour prior to them commencing flip-flopping of rates. Figure 16 below shows an example of one national MCP and the changes it has made to its day, evening and weekend rates over the past 5 years.

Figure 16 - Percentage changes in termination rates Sept 04 to Jan 10



9.137 Figure 16 shows that in the last five years of mobile charge controls, the MCP in question has not changed its termination rates by more than 20% (excluding the period where it started the practice of flip-flopping). The other four national MCPs have between them changed their rates by more than 20% (when not flip-flopping) seven times in five years. But it appears to us that on only two of those occasions have the changes been made to incentivise efficient use of the networks. The other, larger, changes in rates have been made to adjust to the TAC of a new charge

control year or to move to a flat rate. Both of these situations would be allowed between years; the charge control would not prevent 'step changes' between formula years. Additionally, any decreases of more than 20% are permitted under option 2.

9.138 Notwithstanding the step change adjustments between years, with a 20% change in rates permitted each quarter, even if MCPs started a particular formula with similar day, evening and weekend rates, we believe that cumulatively, they could achieve a sufficient differential in their day, evening and weekend rates within the year. We note, for example, that in relation to other telecoms markets that employ time-of-day gradients, the relative differentials between peak and off-peak periods have not had to change significantly. BT has to date changed its fixed termination rates once a year. Its individual time of day rates have not changed by more than 20% each year in the last five years.

9.139 In terms of the quarterly restriction, over the last five and a half years, Orange, T-mobile, Vodafone and O2 have not changed their rates more than once a quarter before the flip-flopping practice started. This is evident in Figure 16.

9.140 In order to incentivise the efficient use of its network, we do not consider that any MCP needs to change its rates more than once a quarter. Indeed, as set out in paragraph 9.125, there needs to be some sustained certainty on MCPs' time-of-day rate structures, so that originating providers, and in turn consumers, can react in a way that will encourage efficient network use. Rapid rate changes would not seem to provide the sustained price signals that would lead to efficient use of the network. The proposed restrictions would not prevent operators alternating their time-of-day gradient, but would make flip-flopping harder.

How would the compliance calculation work?

9.141 The compliance calculation would work in the same way as the current charge control and as set out in paragraph 9.130.

Pros and cons of option 2

9.142 This option adds a degree of complexity to setting rates and compliance monitoring when compared to the counterfactual (and the other options that deal with the flip-flopping concern). Although all other elements remain the same as in the existing control, operators will need to ensure that their prices do not increase by more than 20% each quarter and Ofcom will have to monitor this.

9.143 The benefit of this option over the alternative restrictions discussed below (options 3 and 4) is that it retains sufficient flexibility for operators to use price signals to encourage efficient network utilisation should they need to, while directly addressing the specific issues of frequent and radical rate changes.

9.144 Our estimates show that these restrictions will achieve a reduction of c.90% in the estimated extra revenue that can potentially be obtained from flip-flopping.

Option 3 – Constant time-of-day rate ratio

9.145 This option restricts the frequency of rate changes but restricts their size in a different way to option 2. It would work as follows:

- MCPs set a constant, fixed weighting for their time-of-day rates each year, and this must be set by the rates that are in place on 1 April of each control year.

Therefore if a MCP wants to change its gradient from the previous year, it must do so on 1 April, otherwise the previous year's gradient would remain for the current year.

- Changes to the value of the rates are restricted to the first day of each quarter, as in option 2. The ratio of the rates cannot be changed (i.e. the relative proportions reflected in the time-of-day ratio at the start of the year would be maintained).[220]

9.146 As an example, if a MCP had rates in March 2011 of 4p, 2p and 1p (day, evening and weekend) if it wanted a different time-of-day gradient for its rates in 2011/12 it would have to change them on 1 April. If the MCP changed its rates on 1 April to 3p, 2p and 1p, this would set the ratio for the rest of the year at 3:2:1. Therefore this ratio would have to be followed for all subsequent rate changes (restricted to the first day of each quarter) in that year. This means, for instance, that 1.5p, 1p and 0.5p would be allowed in the following quarter, but 0.5p, 1p and 1.5p would not.

How would the compliance calculation work?

9.147 The compliance calculation would work in the same way as it does under the existing control and as described in paragraph 9.130.

Pros and cons of option 3

9.148 This option would prevent frequent and radical rate changes and retain some time-of-day flexibility at the start of the year. As described in paragraph 9.125, if time-of-day pricing was being used for its intended purpose,we would not expect the structure of rates to change often, if it were to provide consistent and predictable price signals.

9.149 The downside of this option is that it is inflexible to any changes in traffic profiles or behaviour outside the MCP's control that might require an in-year change to the rate structure. However, the rate structure that the MCP had set would only have to remain in place for one year. In practice, we have seen minimal evidence of the need for this flexibility (even so far as the need to differentiate prices by time of day). A discussion of this evidence is set out in options 2 and 4.

Option 4 – flat rate

9.150 Under this option a single, constant, rate would be charged for the whole year. There would be no pricing by time of day or ability to change the rate within the year. One could instantly tell whether MCPs had complied with the control. We expect that there would be very little scope for any kind of gaming, including that which we have identified.

How would the compliance calculation work?

9.151 The glide path determined by the modelling of efficient unit costs in the final period (see paragraphs 9.97 to 9.109) would set the MAC for each year, and the rate chosen by the MCP would apply for all time-of-day periods. Under this option no averaging calculation would be required as only one rate would be charged across the whole year.

[220] There will also be the ability for us to direct a further change to ensure that the MCPs are compliant within the final year of the charge control. This is discussed further in annex 15

9.152 Under this option, our compliance monitoring work would need only to ensure that the MTR was set at or below the MAC. The cost of complying for the operators would also be virtually zero, as no calculation would be required in setting rates to check that they are compliant.

Pros and cons of option 4

9.153 Option 4 would prevent not only the flip-flopping we have identified, but may also reduce and even eliminate other forms of gaming. It is simple and makes rate setting and the demonstration and monitoring of compliance completely transparent. It would also eliminate the time and resource spent in demonstrating and monitoring compliance.

9.154 However, there is a cost to this option, which may be viewed by some as outweighing the benefits. In particular, all flexibility to differentiate prices by time of day is removed.

9.155 We are open to the possibility that the ability to differentiate prices by time of day is no longer necessary, as the evidence shows that MCPs are not currently taking advantage of this freedom (and have not been, for the majority of the existing charge control period). The main purpose of allowing this freedom is so that the MCPs can incentivise efficient network use. Since MCT is only purchased to complete a call made by a retail customer, one would expect any price signals to be reflected at the retail level, if this was a significant factor. But the evidence is clear: currently the MCPs are not differentiating their retail prices for off-net calls to mobiles by time of day.[221] The fixed network operators (FNOs, which account for around 30% of call minutes to mobiles) are also maintaining their retail prices and are not passing through the frequently and radically changing MTRs.[222] Indeed, up until the MCPs started flip-flopping, there was a trend towards them charging a flat 24-hour rate for wholesale termination (i.e. no differentiation by time of day). See the table below for an extract of one national MCPs termination rates with the flat-rating highlighted in bold. In January 2009 this MCP began flip-flopping.

Table 5 - Termination rates April 08 to March 09

	Apr08	May08	Jun08	Jul08	Aug08	Sep08	Oct08	Nov08	Dec08	Jan09	Feb09	Mar09
D	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	4.0645	6.111	8
E	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	4.0645	6.111	7
W	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	**6.0884**	14.5	6.001	1.3139

9.156 It appears to us that most of the current use of time-of-day flexibility for MTRs is not designed to incentivise efficient network use. This is because MCPs and FNOs are not passing through these price changes to their retail prices.

9.157 However, we are sympathetic to the concerns expressed by some MCPs about removing the flexibility to differentiate prices by time of day. Although MCPs may not currently be using time-of-day flexibility for its intended purpose, they may need it in

[221] See examples at the following websites - http://online.vodafone.co.uk/mobile-services/calling/simply-call-charges and http://www.t-mobile.co.uk/shop/mobile-phones/price-plans/pay-monthly/pay-monthly/pay-monthly-25-18m/t-mobile/g2-touch/overview/

[222] See page 6 of BT's retail tariff guide at http://www.productsandservices.bt.com/consumer/consumerProducts/pdf/UKInternationalprices.pdf

the future. Where possible, we would not want regulation to obstruct the use of network charges to incentivise efficient network use.

Preferred option

9.158 We have assessed the proportionality of our preferred option against the following qualitative criteria:

9.158.1 The option targets the specific detriments we have identified, which are the frequent and radical rate changes and the extra revenue that results from this.

9.158.2 The option retains sufficient flexibility to vary rates by time of day to incentivise efficient use of the network.

9.159 Our preferred approach to dealing with flip-flopping at this stage is option 2. We believe it to be the most proportionate response to the issue of frequent and radical price changes. It involves two specific changes to the existing charge control formula which are targeted at the problems that we have identified. Nevertheless, we believe that it retains the MCPs' flexibility to vary prices by time of day to enable them to incentivise efficient network use, for example in response to changes in traffic profiles.

9.160 We welcome stakeholders' views on whether option 2 strikes the optimal balance between retaining flexibility for efficient pricing and restricting gaming opportunities that adversely affect originating operators and, ultimately, consumers. We have drafted the SMP Conditions to accommodate our preferred option for simplicity, however if after considering the responses to this consultation we decide to implement one of the other options we would adjust the relevant parts of the Conditions accordingly.

Question 9.4: Do you agree with our preferred option for resolving the issue of flip-flopping – i.e. charge changes restricted to the first day of each quarter and a 20% cap on individual time of day rate increases? If not, why not? Which is your preferred option and why?

You may want to include discussion of the following in your response:
the specifics of each option, e.g. the 20% cap in our preferred option
the effectiveness of the options in addressing the objectives
the practicalities of the options for you
any disadvantages/adverse effects of these options for you
any other information or views that you feel are relevant to preventing flip-flopping.

Question 9.5: Are there other, more proportionate solutions that we should consider?

Monitoring compliance with the proposed charge control

9.161 Paragraphs 9.110 to 9.160 above set out our options for the design of the proposed charge control and how MCPs will calculate their compliance with the charge control.

9.162 Annex 15 sets out:

9.162.1 the differences to the current control as a result of the new market definition, i.e. the categories of minutes included and excluded from the proposed charge control; and

For each option:

9.162.2 how and when MCPs must demonstrate compliance

9.162.3 how and when we will monitor compliance

9.162.4 the process for dealing with any non-compliance

Question 9.6: Is it clear which types of calls are included in, and which types are excluded from, the new charge control and in turn the compliance calculation? If not, which call types do you want clarified?

Question 9.7: Is Ofcom taking the right steps to monitor compliance?

Question 9.8: Are MCPs able to provide the information required to demonstrate compliance and for Ofcom to monitor compliance?

Part 4: Distributional impacts of changing the termination values

9.163 This section focuses on the potential distributional impacts of the following two options for setting MTRs for the period 2011/12 to 2014/15, starting from a value of about 4.3ppm in 2011:

- LRIC+ (MTR of 1.5ppm in 2014/15); and
- pure LRIC (MTR of 0.5ppm in 2014/15).

9.164 We provide detailed analysis of these issues in annex 13.

9.165 The appropriate assessment would be the incremental distributional impacts that adopting pure LRIC would have, compared to LRIC+. However, the predicted decline in MTRs over the period is substantial under both methods and the difference in terms of levels of estimated MTRs between the two is, by comparison, significantly less substantial in absolute terms. Therefore, we have also considered the overall effects of falling MTRs.

9.166 The impact on consumers of falling MTRs will depend upon how such a change will affect retail prices. Predicting these effects is complex. It should be noted that, even *ex post*, it is difficult to extrapolate the effect that reductions in MTRs have had on the level and the structure of retail prices, and so it is not possible to accurately predict the future impact of further reductions. Also, one would need to consider how any predicted changes in the level and structure of retail prices would affect consumers' take-up and usage of the services.

9.167 Due to this complexity, we discuss the overall predicted impact on consumers without attempting precisely to model the exact changes using a quantitative model that would need to rely on a number of simplifying assumptions. (And, given the predicted absolute difference of MTRs by 2014/15 under the two methods, it would be even more difficult to consider the incremental distributional impact of adopting pure LRIC in isolation).

9.168 For these reasons, we do not consider that the distributional impact analysis is pivotal in relation to the choice between LRIC+ and pure LRIC (although it is a factor that we have taken into account). It has wider importance as we consider the likely implications for consumers of falling MTRs under either option (a major aspect of stakeholders' concerns and responses to this and the European Commission's consultation on the Recommendation).[223]

9.169 The structure of this section is as follows:

9.169.1 How could lower MTRs affect retail prices?

9.169.2 What implications could this have on:

- access to mobile services (that is, mobile phone *ownership*);
- access to fixed services (fixed phone *ownership*); and
- fixed and mobile *usage*, particularly for lighter users.

9.170 After considering which types of users are likely to benefit or lose out, we also assess whether vulnerable groups of consumers may be harmed. We have also performed an equality impact assessment (EIA) the result of which are reported in annex 14.

The possible effect on retail prices of reducing MTRs

9.171 As MTRs fall, retail call charges for (off-net) mobile-to-mobile and fixed-to-mobile calls are also likely to fall, potentially very significantly. To recover a given set of common costs, MCPs are likely to offset these reductions by increasing some fixed (non-call) fees.[224] For example, MCPs may reduce handset subsidies or increase monthly access fees. For pre-pay users, MCPs may set more limits on use, for example by imposing minimum monthly spending commitments. Therefore the structure of retail prices will change. For both pay monthly and pre-pay mobile customers, the overall effect will be that calls are cheaper, but other aspects of their service may be more expensive or less generous.

The possible effect on mobile take-up of reducing MTRs

9.172 Lower MTRs may lead to lower call charges, but may also result in higher fixed, or subscription, charges. When MTRs were very high (as in the past), there were incentives on providers to encourage as many people as possible to take up mobile services, even if those users only received calls – as a result, consumers with low usage can have a mobile phone for little or no outlay. We would be concerned if falling MTRs changed the structure of mobile retail charges in a way that could discourage some mobile subscribers from maintaining access to mobile services at all. Industry stakeholders have argued that falls in MTRs are likely to cause a steep decline in the ownership of mobile phones.

[223] See EC consultation documents at http://ec.europa.eu/information_society/policy/ecomm/library/public_consult/termination_rates/index_en.htm

[224] Unfortunately, the term 'fixed' is used in two senses in this context: fixed *line* services (as in 'fixed vs mobile') and fixed *charges* (which are charges that are not call charges but include, for example, monthly access fees). We have sought to use other, clearer terms where we can, and to minimise the risk of confusion by being clear in which sense the term is used where it is unavoidable.

9.173 Having considered the available evidence, we think that while a decline in ownership is theoretically possible, we believe that its extent is likely to be considerably lower, or less significant, than some stakeholders predict, because:

9.173.1 mobile providers are likely to choose to focus price increases on customers who are less price-sensitive, rather than (for example) customers who would not, or could not, pay more and would leave the network;

9.173.2 the impact most stakeholders analyse is assessed in terms of subscriptions (or number of SIM cards) rather than levels of ownership. In terms of equity, we are much more concerned about people losing access to mobile services altogether, than the relative prices of having one, as opposed to two or more, subscriptions;

9.173.3 contrary to what is implicitly assumed by some of the stakeholders' analysis, mobile operators are likely to pursue profit maximisation rather than revenue neutrality, which may limit how much they will raise fixed charges and to whom; and

9.173.4 the use of survey data, based on stated preferences, may have overstated consumer reactions.

9.174 Estimates from the available empirical studies suggest that demand for subscriptions does not vary greatly as prices change.[225] These estimates might overestimate the impact of lower MTRs as they measure the impact on ownership of lower retail prices, while lower MTRs may lead to a different retail price structure but not necessarily lower retail prices.

9.175 An illustrative estimate, using results from a report by CEG on behalf of Ofcom (published in the May 2009 consultation document), suggests that the impact of lower MTRs on mobile ownership is likely to be modest. The estimated impact of a reduction in MTRs from the 2011 level to the pure LRIC level in 2015 is a decline in subscription penetration (not ownership) of approximately 3%. Within this estimated impact, the incremental impact when moving from LRIC+ to pure LRIC in 2015 is estimated as a decline in subscription penetration of about 0.7 %. We believe that both these estimated impacts (on mobile penetration) are likely to overstate the effect in terms of mobile ownership.

9.176 Finally, past reductions in MTRs have not prevented continued increases in mobile take-up. It is therefore possible that reducing MTRs may not have as material an impact on mobile ownership as some stakeholders have suggested.

The possible effect on fixed take-up of reducing MTRs

9.177 Fixed operators will face lower MTRs for fixed-to-mobile calls and for fixed calls more generally. In essence, consumers will pay lower prices to use their fixed-line phone. As a result, it is possible that fixed penetration could be higher than it would have been (although whether this will reduce the recent downward trend in fixed subscriptions or lead to an increase in fixed subscriptions is unclear). We have not examined this in detail as we believe that the impact (if any) is likely to be too small to be material; our research in other market reviews[226] has shown there are many

[225] For example, paragraph A13.96 sets out a range of studies which have found that estimated elasticities are roughly 0.5 or less.
[226] See http://www.ofcom.org.uk/consult/condocs/retail_markets/consprefs.pdf

reasons, other than the price of fixed-line services, why consumers are increasingly mobile or mobile-only.

The possible effect on usage of reducing MTRs

9.178 Overall, two factors affect mobile usage. First, mobile users are likely to be worse off because mobile networks will receive reduced funds from fixed-line callers. As long as the mobile retail market is competitive, this reduction in the transfer of funds from the fixed sector is likely to increase retail prices to mobile users. Second, a switch to pure LRIC is likely to *benefit* mobile users and because it will enable retail price structures to better reflect the underlying costs of provision (See discussion in annex 12). The change in the retail mobile price structure should increase the usage levels of mobile subscribers who do not drop out, and they will benefit from making more calls. It is very difficult to estimate precisely these two off-setting effects. Overall, however, we believe that mobile users might benefit from the change to pure LRIC, although some users will lose out. (See discussion in annex 13, paragraphs A13.132-A13.148).

9.179 Stakeholders have argued that low-usage mobile consumers are likely to be negatively affected by a switch to pure LRIC (or to lower MTRs more generally), while high-usage consumers may (perhaps) benefit. We are sceptical that there is enough evidence to support this argument; it is difficult to identify low-usage consumers as a category that will be harmed, for the reasons noted above. The potential 'losers' are those who have the lowest elasticity of demand for calls and , will therefore not benefit from the likely reductions in call charges. We do not believe that low-usage consumers as a category *necessarily* have lower demand price elasticity for calls. So while there will be winners and losers from lower MTRs, we do not think these could be simply identified as low- or high-usage mobile consumers (see paragraphs A13.144-A13.148).

9.180 Reductions in MTRs will reduce the costs and the retail charges of fixed-to-mobile calls. Therefore, fixed-line users (and in particular, fixed-only consumers) are likely to benefit.

9.181 This means that the vast majority of consumers who use both fixed and mobile phones are likely to face both positive and negative effects, with the overall outcome dependent on their relative use of the two media and their relative demand elasticities for fixed and mobile calls. Without detailed information on usage patterns and demand elasticities, it is not possible to identify in more detail who would gain and who would lose. Carrying out such an assessment would be complex and resource-intensive; given that it is also likely to be inconclusive, we do not think it would be proportionate to carry it out.

Vulnerable consumers

9.182 We have considered whether vulnerable consumers are disproportionately affected by falling MTRs. 'Vulnerable consumers' means, in this context, those with low incomes or those who belong to socio-economic groups D and E. This analysis is set out in paragraphs A13.153-A13.168.

9.183 The available data suggests that both mobile-only and fixed-only consumers are more likely than the total population to belong to vulnerable groups, and are significantly more likely to be vulnerable consumers than those who use both services. However, it is unclear whether those who are assumed to be negatively affected (mobile-only pre-pay users) are proportionally more likely to be vulnerable

consumers than the general population of mobile users or the general category of mobile pre-pay users, which includes also the fixed-users. Whether this is the case or not, depends on the metric being considered, in particular whether it is those with household incomes of less than £11.5k, or those in the DE socio-economic group. In contrast, fixed-only users (who are the most likely to gain from the change) are significantly more likely to be vulnerable consumers, compared to the total population and fixed users in general.

9.184 In essence, there are more vulnerable consumers among fixed-only and mobile-only pre-pay consumers (as a proxy for low-usage consumers) than in the population as a whole. This is more evident for fixed-only consumers. However, while it is likely that fixed-only users will benefit from lower MTRs, the potential effect on (low usage) mobile consumers is more nuanced, less certain and not necessarily negative, as noted above.

Equality impact assessment

9.185 We have also considered (as we are required to by statute) whether there are impacts as a result of our proposals on race, disability and gender equality – an equality impact assessment (EIA). The purpose of the EIA is to examine the impact that a policy is likely to have on people, depending on their background or identity.

9.186 Our analysis is set out in annex 14. Our EIA relies on the evidence that was analysed in the distributional impact assessment. In particular, we consider whether certain groups will fall into the categories of consumers that could be negatively affected by a change in the MTR. Our findings suggest that our proposed recommendation will not have a material negative impact on race, disability and gender groups. We do find that non-white consumers are less likely to have fixed-only services. However, no firm conclusion can be drawn from this result, due to the differences in the way different ethnic groups use telecommunications services. Women are more likely to be in those groups we use as a proxy for those most likely to be negatively affected. However, we consider that this reflects the proxy chosen rather than the actual likely effect of lower MTRs on this group. We know of no reason to believe that women are more likely to be less sensitive to the price of making calls or retaining a mobile service. Finally, we find that both those who are most likely to benefit (fixed-only consumers) and those most likely to be negatively affected (mobile consumers on low incomes/in the DE socio-economic group) are more likely to be disabled. A greater proportion of those in fixed-only households report having a disability then those on low incomes, which may indicate that reducing MTRs could be marginally more likely to benefit disabled consumers as a whole.

Potential impact of declining MTRs on the MCPs

9.187 This section assesses the impact of declining MTRs on the four national MCPs whose MTRs were previously regulated. It also considers the impact of declining MTRs on MVNOs and other MCPs, where their MTRs are currently unregulated.

9.188 The total reported revenues[227] of the UK mobile industry in 2008 were approximately £20bn, of which gross annual revenue from mobile call termination is of the order of £3.5bn. Roughly two-thirds of gross revenue from mobile call termination (~£2.2bn)

[227] Source: Operator statutory accounts & Ofcom analysis.

relates to calls between MCPs, and the remaining sum (~£1.2bn) to calls from fixed operators.[228]

9.189 The 2G/3G MCPs each report having between 16 million and 22 million subscribers.[229] H3G reports that its current registered subscriber base is over 4.5 million. Volumes of voice call minutes terminated by each of the five MCPs are roughly proportionate to the volume of subscribers, although there is some material variation between MCPs.

9.190 In addition to receiving revenue for MCT, each MCP also makes payments to other MCPs for voice call termination on their networks. Although, as might be expected, the flow of termination minutes between most MCPs is broadly in balance, some MCPs are material net providers of inter-MCP termination minutes (and, therefore, net receivers of inter-MCP revenue). Whether an MCP is a net-receiver or net-payer of inter-MCP revenue is dependent on differences in retail tariffs and types of consumer base.

9.191 At the industry level the flow of mobile to mobile termination minutes is in balance and therefore nets off to zero, so the main impact of changes to mobile termination rates will therefore be seen on fixed-to-mobile call revenues. For each MCP, the net revenue affected by MTRs is the relevant rate multiplied by incoming fixed minutes, plus net mobile termination minutes (i.e. the calls from other MCPs' subscribers terminated on the specified network, less the calls from that network's subscribers terminating on other mobile networks).

Revenue and profitability impact

9.192 Total fixed-to-mobile call termination revenue in 2008 was around £1.2bn.[230] If we assume that at an industry level, mobile-to-mobile termination revenues net off to zero on aggregate, this figure represents the current net revenue that will be affected by future changes in mobile termination rates.

9.193 In order to simplify our analysis of the impact of termination rate changes, we have assumed that demand for fixed-to-mobile minutes will remain unchanged between 2008/09 and 2014/15. In the context of substantially lower mobile termination charges, which may be partially reflected in lower prices for fixed consumers, this assumption is likely to be very conservative.

9.194 In assessing the impact of declining MTRs on the national MCPs, three contributing factors need to be distinguished:

9.194.1 2008 Mobile termination rates, set by the previous charge control, were above the LRIC+ cost because the glide path method brings prices in line with cost only at the end of the glide path;

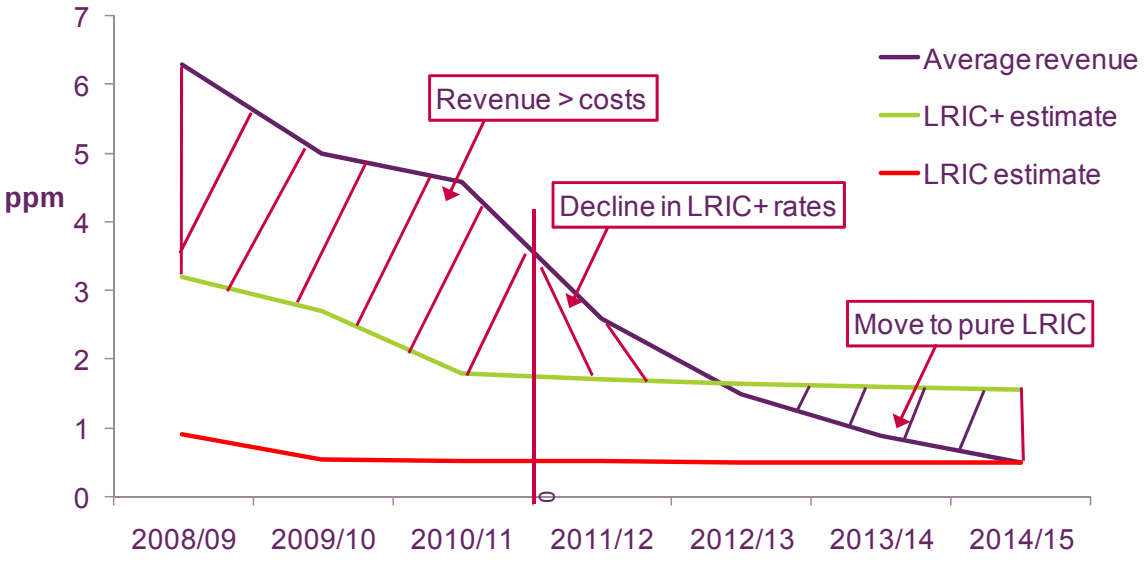
9.194.2 From 2008 to 2014/5 we expect unit costs (measured on a LRIC+ basis) to fall materially;

9.194.3 In this market review we are proposing to change from a LRIC+ basis to a pure LRIC basis, resulting in lower termination rates.

[228] Source: Ofcom analysis.
[229] The basis on which these figures are assessed may vary according to different churn management practices which, for a period of time, leave some non active subscriptions on an MCP's subscriber records
[230] These revenues are reported to Ofcom as part of our usual information-gathering procedures.

These three factors are illustrated in Figure 17

Figure 17 - Impact of declining MTRs



Mobile termination rates are currently well above cost

9.195 The fixed-to-mobile termination revenues of £1.2bn in 2008 were generated from around 20 billion minutes of traffic, at an average price of around 6p per minute. This average price is a consequence of our last review of MCT rates in 2007, when we forecast the costs of mobile call termination based on a LRIC+ model.

9.196 The forecast costs of mobile termination in 2008/9 were in a range of 5.75p (for O2 and Vodafone) up to 8.1p (for H3G). However, if we were to substitute current volumes and costs into the same model, we would see materially lower unit costs of mobile termination.

9.197 Therefore we believe that the MCPs are currently enjoying the benefits of efficiency gains, as well as lower input costs and higher volumes than we expected. This is entirely reasonable and forms an important part of the efficient incentivisation mechanism when NRAs such as Ofcom set prices, i.e. if MCPs are able to reduce costs through efficiency gains after regulated prices are set, then they gain until the NRA resets prices. Even if there is less need for efficient incentives in this market, as opposed to, say, one-way access markets, as MCPs compete in retail markets so they already have an incentive to reduce costs.

9.198 We estimate the extent of these benefits in 2008/9 to be of the order of 3ppm on average across all the MCPs, although the benefit will be very different for each MCP depending on their regulated charges and their cost base.

Declining LRIC+ based MTRs reflect the declining costs of terminating calls

9.199 The cost model used to set regulated MTRs attempts to calculate the costs involved in the termination of calls on a mobile network (either on a LRIC+ or pure LRIC basis).

9.200 MTRs should reflect costs and should therefore, for an average efficient operator, be profit-neutral as costs incurred are offset by revenue received. This means that the impact of declining MTRs (if calculated on a similar basis as now) would have minimal profit impact (beyond the initial loss of excess profits). However, in line with the EC Recommendation, we propose a move to pure LRIC rather than maintaining LRIC+.

The move from LRIC+ to pure LRIC calculated MTRs

9.201 Moving from LRIC+ to pure LRIC will reduce MTRs. If common costs, which are excluded from pure LRIC, are not recovered from other services we would expect to see this being reflected in lower profits. This impact could be of the order of 1ppm on fixed-to-mobile minutes, or around £0.2bn annually. This is equivalent to around 5% of the national MCPs' 2008 EBITDA.

9.202 We anticipate that the national MCPs might respond to any net reductions in termination rates (which reduced their profitability) through a range of measures, which might include tariff rebalancing (e.g. changes in handset subsidies, subscription charges and/or call charges), further price differentiation and measures to improve efficiency. We would also expect the lower MTRs to increase usage so the margin linked to the increased volume of calls would reduce the scope of tariff rebalancing.

9.203 How this might work out for individual consumers will depend on a variety of factors. These include the speed at which reductions in termination charges are translated into lower fixed-to-mobile charges; the specific adjustments made by the MCPs (e.g. mobile call/minute charges might fall, but fixed charges may rise); and the consumption patterns of individual consumers (fixed v. mobile; high v. low usage). Overall, however, the impact on consumers of the reductions in termination rates should be positive:

9.203.1 Retail call prices on average (i.e. for mobile-to-mobile and fixed-to-mobile services) should fall,

9.203.2 Secondly, retail price structures should evolve thereby facilitating greater competition – for example, lower mobile call rates should further intensify the competition between fixed and mobile.

9.204 In summary, our proposed price reductions will first bring MTRs into line with current lower costs, and then into line with predicted further cost reductions in later years. However, we do foresee a possible profit impact caused by the proposed move from LRIC+ to pure LRIC.

Potential impact of declining MTRs on other MCPs and MVNOs

9.205 The responses to the May 2009 consultation highlighted that a change in MTRs would impact seemingly similar stakeholders differently. Tesco,[231] for example, called for Ofcom to be prudent in any changes in MTRs, while Asda[232], also a MVNO, called for MTR deregulation.

9.206 We believe that one of the key drivers behind these differing responses to changes in MTRs is the differing commercial relationships between the MVNO and the host

[231] http://www.ofcom.org.uk/consult/condocs/mobilecallterm/responses/
[232] http://www.ofcom.org.uk/consult/condocs/mobilecallterm/responses/ASDA.pdf

network. These relationships are negotiated on a purely commercial basis and are not subject to regulation. Therefore we believe that even if current commercial relationships may cause the profitability of some MVNOs to be impacted differently, the overall impact on MVNOs will be similar to that in the market as a whole. Some MVNOs may be net winners and some losers - although we would expect some commercial renegotiation of MVNOs' arrangements to reset these imbalances.

9.207 Similarly, other MCPs which are not currently subject to MCT regulation will be affected, although we expect the benefit of certainty over MTRs to have a overall positive impact on smaller MCPs which are more attuned to the need for regulatory, and therefore revenue, certainty than the national MCPs.

Question 9.9: Do you agree with the conclusions of our distributional impact assessment?

Question 9.10: Do you agree with our EIA, that reducing MTRs will have no significant impact on any specific identifiable group? If you disagree with this statement we would welcome any evidence you hold showing why this statement might be incorrect.